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THE
CANADIAN AGRICULTURIST,
AND
Transactions
OF THE
BOARD OF AGRICULTURE OF UPPER CANADA.
A MONTHLY JOURNAL,
DEVOTED TO
AGRICULTURE, HORTICULTURE, SCIENCE,
AND
DOMESTIC AND RURAL ECONOMY.

Illustrated with Engravings.

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WILLIAM M'DOUGALL, PROPRIETOR.

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VOL. IV.

TORONTO, JANUARY, 1852.

NO. 1.

PRIZE ESSAY

ON AGRICULTURE AND ITS ADVANTAGES AS A PURSUIT.

BY WILLIAM HUTTON, BELLEVILLE.

[Read before a meeting of the Agricultural Association of Upper Canada, at their Annual Exhibition at Brockville, Sept. 25, 1851: to which was awarded a Gold Médal of the value of £10; given by the Directors of the Johnstown District Agricultural Society.]

"He that causes two blades of grass to grow where only one grew before is a benefactor of his country."—
DR. JOHNSON.

If this motto be true how great a benefactor of his country must be the good practical farmer!

The changes which the power and susceptibility of cultivation are able to effect on the vegetable kingdom, as well as the animal, are truly wonderful. Nature has bountifully and beautifully endowed every vegetable, whether root, flower, or fruit with a certain capability of change, according to circumstances of soil, climate or position;—and the farmer or gardener who judiciously practices upon this power has succeeded, and will ever be able to succeed in rearing products far superior to their natural originals, as to bear but slight resemblance to them. In a state of nature almost all plants are confined to certain localities suitable to their nature in soil or climate, and if allowed to remain uncultivated and unremoved will retain their natural condition; but as soon as removed to a more congenial soil, or a better climate, or even cultivated in their own soil and climate, they undergo a change clearly discernable in their external character in some point or other. In some descriptions of plants the change is greater in their roots;—in others in their leaves and stems; and in others in their blossoms and fruits. By continued cultivation these changes are transmitted through successive races; but if the stimulus be kept up plants again will degenerate to their natural condition. Take as an example the potatoe: This

plant is a native of Tropical America. When found wild the tuber is about the size of a common chesnut and not by any means palatable; but how valuable as food both in quality of nutriment and facility of production is almost beyond calculation! In its natural state there would not be 4 cwt. on an acre, (could an acre of them be found,) but when the farmer applies his power and skill of cultivation, we frequently see an acre produce from six to eight tons, *i. e.* from 240 bushels to 340, in this country, and even much more in the Old Countries. Within the last century the cultivation of this plant has produced innumerable varieties of shape, size, colour, and quality. Sir Walter Raleigh imported them into Britain from Virginia, and directed his attention to their cultivation in his garden in Ireland. It is related that his gardener being ordered to supply the cook with a dish of them, gathered the seed apples or buttons (as they are sometimes called) and had them sent up much to his master's dismay. He had no idea that it was the *tuber* that was edible, and the gardener only discovered his mistake when in trenching the garden for the winter frosts, he turned out the first improved potatoes!

The turnip too is another example of the power of cultivation—it has been changed not only in colour from white and yellow to purple and green, but in weight also, from 2 ounces to 24 lbs! The carrot too, which in its natural state is a slender root of a yellowish white colour about the size of a common quill is now metamorphosed into a deep red or orange colour, about the size of a man's arm! Such is the effect of cultivation and removal to a richer soil, where it meets with all the elements essential to its growth, and where its bed is deepened and softened to admit the easy expansion of the root in every direction.

Plants just like animals have a tendency to reproduce their own qualities in their offspring, and the skilful farmer taking advantage of this feature is enabled to rear such descriptions as be-

suit his own purpose, until by continued improvements and successive developments they not only greatly exceed unaided nature, but sometimes become altogether monstrous. The cabbage which in a state of nature has a tough and slender stem and weighs perhaps one ounce; by judicious culture becomes succulent, and changes to a heart or cluster, often weighing from 20 to 51 lbs.! one of that weight having been exhibited in England last year. Wheat, barley, and oats in a wild state are thin and meagre, and of little or no value; by cultivation they become large and plump, and, perhaps, the most important elements of subsistence for both man and beast.

Trees and stems too of all kinds become liable to great changes. The native of the mountain when transplanted in the valley grows with greater rapidity, but the timber becomes softer and less durable; whilst the tree of the valley, when removed to the mountain becomes of slower growth and more stunted form but the timber is tougher and more lasting. I might go on to enumerate the various fruits whose properties are changed by cultivation both in quality, size, and colour, so as to render them almost beyond recognition; such as the plum proceeding from the sloe, the apple from the crab—the peach and nectarine from the almond—the orange and lemon from the lime—the garden cherry from the wild one, &c.; but I have enumerated quite sufficient examples to show very clearly the vast advantage to be derived by efficient cultivation, and the beautiful and merciful adaptation of the nature of the vegetable kingdom to the bountiful supply of the wants and growing requirements, as well as the pleasures and gratifications of civilized man, if he only exert his industry and skill to cultivate.

Perhaps it would be well now to state what constitutes efficient cultivation of the soil, taking it in an AGRICULTURAL point of view, in the enlarged meaning of that word.

As the famous authoress of the *Cookery Book*, Meg Dodds, in describing how to cook a hare, begins with, "First catch the hare," so perhaps I may say, First get the farm, and let it be such a one as is best suited to the means of purchasing and stocking, and to the amount of capital and labour which can be brought to bear upon it. The larger the extent of cleared land, the smaller proportionate capital will it require:—Thus a farm of 150 acres cleared may be managed (after having secured the freehold) with a capital of 20s. per acre; whilst a farm of 50 acres will require 30s. per acre, supposing both farmers to be proprietors of the soil, and working men. If not working men a larger capital will be required, and the return will be smaller. There are very few farms in the country which are

Having procured the farm, (always supposing it to be partially cleared,) perhaps the first and most important of all agricultural knowledge is that of a proper rotation of crops, suited to the soils under cultivation.

ROTATION OF CROPS.

I set out with an assertion that may be new to many, but which I believe is perfectly correct and borne out by experience, that naked summer fallows are, in a general way, extremely injurious to the soil and ought not to be tolerated, except where there are stumps or stones to be removed, for doing which there is not time enough except during the summer months. The exposure of the soil to the heat of the summer sun weakens its vital powers and exhausts its richest properties. If light land the exhalation renders it still lighter; if heavy land it extracts vegetable juices and leaves it less nutritious than it would have been if protected from the sun. In the best agricultural countries in Britain the naked fallow is abandoned and the land is kept clean by a constant succession of drilled and heavy smothering crops. For this purpose the five course husbandry is very generally followed, (perhaps more so than the four course, which is also very much adopted) under the five course husbandry one fifth of the farm is each year occupied as hereunder described:—1st, Drilled crop, Turnips or Potatoes; 2nd, Barley; 3rd, Clover meadow; 4th Pasture; 5th, Wheat, or Beans; varied occasionally to 4th, Wheat, 5th, Oats; though it is not approved to sow two grain crops in succession. This beautiful system keeps the land always in prime condition, and no one crop being too often repeated, the properties of the soil necessary for its growth are not exhausted, nor too large demands made upon the particular properties requisite for the growth of particular crops. Perhaps in Canada it would be impossible to follow this rotation because we have not the artificial manures, such as bone dust, oil cake, guano, &c., to cultivate so large a proportion of drilled crops; but we ought to approximate to it as much as possible, and at all events endeavour to avoid naked fallows except where absolutely necessary. The expense of naked fallows unaccompanied for one year by any return—the two years' rent or interest of purchase money which is just the same, the extra plowings and diggings, which effect no more in the way of cleaning than a good smothering crop, all these are such heavy drawbacks from the profits of the wheat crop, (costing—independent of manuring, which would have to be done at any rate—at least 25s. per acre.) that every farmer should avoid naked summer fallowing as much as possible. To avoid the necessity for it, the manure for the drilled crop might be got out in autumn and plowed down as the winter comes on, and the land will be drawn out and the land will

then easily be made ready in the earliest spring for early planting or sowing of the drilled crop.

Perhaps under the peculiar circumstances in which we Canadian farmers are placed, the six course husbandry is the most advisable, though I think before many years elapse the more improved five course system will be generally adopted in the old cleared farms, where summer fallowing can be dispensed with.

The six course husbandry may be thus designated:—1st, Drilled crop of all kinds; 2nd, Spring wheat, or Barley, or Oats; 3rd, Clover Meadow; 4th, Pasture; 5th, Peas; 6th, Winter wheat.

If there be not enough of manure to put one-sixth of the cleared farm under drilled crop, the part left might be sowed in Buck Wheat, and plowed down, so that the land might come in with the drilled crop. The Buck wheat, if there be any necessity to have recourse to it, should be sowed in June and plowed down late in July and the land carefully rolled when the wheat is up, to pack the Buck-wheat close, as the wheat is apt to winter out if the land be not rolled.

The wheat crop will very probably not be as good as after the drilled crop, but this is the best substitute that I know in such an emergency, and better than naked fallow, as it gives a good supply of vegetable matter to the soil instead of exhausting its properties under a summer's sun. In speaking of drilled crop I would observe that, from long experience I am convinced of the fact, that in our cold climate turnips, mangel wurzel, and such succulent food does not convey the same degree of benefit to cattle that the same money's worth of grain conveys. Grain is much more warming and bracing to the system, and cattle of all kinds thrive more upon one bushel of Indian Corn than they would upon three bushels of Turnips or Mangel. The hope of fattening cattle successfully in this climate upon Turnips (even the best Swedes) without giving a good deal of grain or Canale is now nearly abandoned; and in fact the price of beef in general, is so low, that farmers have not much encouragement to grow either turnips or grain for this purpose; less than 25s. per 100 lbs. for beef, would not pay the farmer the expense. But whether for fattening purposes or for sale, is the drilled crop most worthy of our encouragement, if the land be well manured the Fall and Plaister judiciously applied, it is not so uncertain a crop as many people imagine. The seed should be all in the ground before the 28th of May, having been previously steeped for 24 hours, and rolled in plaister, which is certainly a very powerful stimulant and a great expeditor of its growth, and the sooner it is well out of the ground the sooner it escapes its numerous enemies, and if the manure be all drawn out and plowed down in Oc-

tober and November, it is quite possible to have it all planted thus early. The plan of planting Indian Corn in drills, instead of in hills, is now much adopted and with excellent effect, as very much labour is saved,—the plough and drill harrow being all that are required for cleaning; and the crop is equally good, and often better, if the seed be put in about six inches apart and the drills about 2 feet 8 inches asunder,—this requires a little more seed but that is of trifling moment. In the neighbourhood of Colborne and Grafton, this plan is pursued with excellent effect, and the saving of labour by this method is a very important item. With regard to turnips the Swede is undoubtedly the best, it being a more certain crop—producing a greater weight to the acre, and standing the frost better than any other turnip. The seed should be sown in drills 2 feet 8 inches apart, about the 20th of May, and the land often moved and kept off the bulb, as they grow much faster when left perfectly free from mould, and having but a slight hold of the ground. Their great enemy is the turnip flea, which eats them off when in the first leaf. The best remedy against the flea is to steep the seed in Tanner's or Rape oil for 24 hours, and dry it with sulphur. This, with a sprinkling of plaister soon after they appear, will expedite the growth so much that they soon get out of the reach of the flea. But I must confess that I prefer Mangel Wurzel to Turnips—they are a much more certain crop—have a greater weight to the acre, and are better for cattle, especially milch cows. The seed should be carefully steeped in soft water 24 hours, dried with plaister and dibbled in about one inch deep and 7 inches apart to allow for failures—if all grow every second plant can be hoed out.

Mangel wurzel was first introduced into England from Germany by a Dr. Lettsom, in or about the year 1797. The meaning of the word is Root of Scarcity, and strange to say, the French name for it is Racine d'Abundance, root of plenty. When the outside leaves begin to fail they may be taken off without injury to the plant and afford a large supply of excellent food for cows or hogs; they also bear transplanting admirably, and the roots if protected from the frost and wet will keep perfectly good till April or May. Many farmers in England sprinkle the young plants, when about 6 or 8 inches high, with liquid manure from their cisterns, which they draw out in water carts,—and the system of saving all the liquid manure in cisterns for the purpose is engaging the attention of the best agriculturists. They put spouts to all their farm buildings so as to carry off the rain, that the quality of the liquid manure may not be deteriorated. It has been clearly proved that this is an admirable plan, and ought to be followed in Ca-

nada, as it is not expensive—and too many of us are extremely negligent in allowing the most fertilizing properties of our manure to be carried off, without an exertion to save it.

Mangel Wurzel should not be moulded up, nor should the mould be howed away as with Turnips, but the ground should be kept level. It is a plant that requires a great deal of potash in the soil to bring it to perfection, and on that account it is that a small quantity of unleached ashes applied on each hill, has such a wonderful effect in expediting its growth.

PLOUGHING.

Having considered the proper rotation of crops, it may be well to say a few words about ploughing, and thanks to our Association and Branch Societies, this department is pretty generally understood. The old system of ploughing 10 or 14 inches wide and laying the furrow quite flat is, I think, almost entirely abandoned;—6 inches deep by 9 inches wide is about the proportion, and if properly turned, leaves the furrow at an angle best calculated for covering both grass and seeds. The Prescott plough, one of which has been sent to the Great Exhibition, is probably as good as any we have. The weight of draft in it is less than in many in common use, and it turns the furrow at the best possible angle, the mould-board cleaning itself immediately over the whole surface, showing thereby that the friction is equally divided over the whole mould-board, and the draft consequently light upon the horses. As to the time of plowing it seems evident that only summer fallow, or only drilled crop, or perhaps a bit of stiff sod, should be ploughed in the autumn. There is always a better crop of grain upon what is termed a hot furrow, *i. e.* new turned, and great care should be taken that no land should be ploughed wet, at least in the spring of the year. If clay land be ploughed wet it requires double or treble dragging, and nearly double seed, and after all the extra seed and labour, the crop is never so good as when the land is ploughed dry, even if it should be 8 or 10 days later. If gravelly land or sandy loam be ploughed wet, the effect is not so bad, but the vegetation is not so rapid as when ploughed immediately before sowing, nor is the crop ever as good. Patience is often a great virtue with the farmer in the spring of the year. It often happens that farmers plough their *summer fallows* early in spring, when they think the land too wet to plough for a spring crop; but they universally have to lament their ill judged haste; the land is more difficult to labour through the summer than if they had waited patiently to turn a drier furrow; the fallow cannot for that reason be got into as good order as if a little judicious patience had been exercised in the early

sowing.

SOWING.

First, as to thick and thin sowing. From many years' experience and intimate knowledge of Canada, I am convinced that farmers do not sow thick enough. As to wheat and oats for example: if thin sowed on rich land the young plants will stool out or tiller very much, showing that nature makes a great exertion to supply the want of seed, and every farmer will observe that each shoot as it becomes further removed from the parent stem becomes weaker, and the produce more and more deficient, and more liable to disease, such as smut, mildew, &c.; and they will further observe that every outshoot from the parent stem is more subject to disease and weaker than the parent itself. In 1850, in a field of ten acres, I tried two average acres with a double cast of seed, sowing about $3\frac{1}{2}$ bushels to the acre, and I was delighted to find at harvest, that on this land, thus thickly sowed, the crop was fully one-third better than any other two acres in the field; there being more parent stems, the heads were prouder and came all to more equal maturity; the capabilities of the soil were more equally diffused, and the result showed so very much in favour of thick sowing that I am led strongly to recommend the practice. It is too much the custom in Canada for farmers to calculate what return they have from the bushel of seed instead of from the acre of ground. If they put in more seed they might have a smaller return *per bushel*, but they would have a larger return *per acre*, which is the great desideratum. I have this year sowed 4 bushels of oats to the acre, and I am confident there is not one grain too much; the soil is heavy clay, but even on rich loam I would recommend the same quantity of seed;—the experience of the old countries is, that that quantity is not too much there, and I know of no principles by which our cleared lands would require less seed than similar soils in England. Having farmed many years very extensively in the Old Country, I always sowed $3\frac{1}{2}$ bushels of good wheat, and four of oats (weighing 40 lbs. to the bushel) to the acre, with the best possible effect. The land too, is not nearly so much exhausted by growing a thick crop as it is by growing a thin one, even if the acreable produce were the same, which is quite possible, but of rare occurrence. The same principle holds good in the sowing of clover. If much grass seed is not sowed with it, there should be 12 lbs. per acre sowed; and this is the quantity always sowed in the best agricultural counties of England; and perhaps for this reason—there the custom prevails to a great extent, to plough down the aftermath or second growth when about 8 inches high, and sow wheat upon it, and I have seen splendid crops from such practice; but where

this custom prevails the clover is never kept a second year, it is either mowed and the second growth ploughed down for wheat, or it is pastured till October and then plowed down. This is called the four course husbandry, viz: Turnips, Barley, Clover, Wheat or Beans; an admirable system in the Old Country, but beyond our reach. The result of experience then shows that *thick* sowing of grain to a certain limit, is far more profitable than *thin* sowing. Though the seed may cost a little more, the acreable produce will be much greater in proportion. Every skilful farmer can easily ascertain what that limit is. The best and cleanest grain should be always used for seed as the shoots from such are always the strongest, and a constant renewal of seed is absolutely necessary to ensure an abundant crop.

After sowing, or rather after the grain is well up, there should be a free application of the roller, not only to level the land for the cradle or scythe but to retain the moisture in the soil, and mould the plants; and in the spring of the year, as soon as the land is dry enough to carry the horses without injury, all the winter wheat should be well harrowed to break the crust of the soil, to mould the plants and to admit air and moisture to the roots. Experience has fully shown that in every description of land, the free application of the harrow to winter wheat in spring, has a most beneficial effect, and the fear that most farmers have that the harrow will tear up and injure the wheat is most unfounded and absurd. Let every farmer but try a small piece one year, and he will undoubtedly harrow all he has every spring afterwards during his life.

This year, 1851, I had a field of wheat so much wintered out that I sowed spring wheat over it, and though well dragged four times over with a very heavy drag, the few spots that were not wintered out were benefitted, instead of being destroyed: but at all events, one good close bout of a heavy harrow is essentially beneficial.

DRAINING.

I should, perhaps, have observed before, that to secure good wheat, good draining is indispensable. By good draining I would not pretend to recommend tile draining, or covered underdraining, such as is found necessary to have in England or Scotland, except in peculiar localities. We do not require such in our dry climate, and the expense being from £4 to £6 per acre, exclusive of tiles, say in all £10 per acre, would overrun the advantage. In damp soils and situations it will be generally sufficient to ascertain the source of the spring, and by one good deep drain intercept the supply and cut it off. As a general rule this with good and judicious water furrowing, and a few surface drains will suffice. Neither our increased crops, nor prices, nor profits, would remunerate us for expensive draining: nor does the climate require it, except in a few local instances, and the farm that requires much expensive draining is

not worth having. I have never yet heard of any farmer in Canada, who is able to realize for five successive years, a net annual profit of 20s. per acre, over his whole cleared farm, i. e. after deducting seed and labor, (his own included) and the interest of the acreable value of the land: and I know of no land that would pay for expensive draining such as is done in the old country. If a farm require it, except in a few local instances, the owners should rise up and leave it: our average acreable produce, under the best circumstances, will not warrant a heavy expenditure of any kind. Even with the greatest skill and caution, our crops are too precarious to repay extensive outlay. Those who succeed best amongst us are those who do as much as possible within themselves, not employing much external aid, not laying out money for which they cannot calculate a certain return. This year, 1851, for instance, the finest wheat on the finest, richest and best drained soils is deteriorated fully one third, over all Canada, by a severity of spring and winter weather, which it would have been impossible to guard against, or even to foresee, and this is by no means uncommon. The greatest of all skill in farming is "properly to adapt our expenditure to the certainty or uncertainty of our returns." Those cannot be called *improvements*, the result of which will not pay for their completion; a real *practical* farmer will not enter into them. Theoretical farmers sometimes do commence expensive operations, but as soon as their money is gone they become practical farmers, sometimes buying their practical knowledge at a *ruinous* price.

Far be it from me then to recommend expensive draining, or expensive operations of any kind, on a farm in Canada; but it is a very important branch of a farmer's knowledge to be able to cut off the greatest body of surplus water by the least expensive means—this knowledge can only be attained by attentive observation and experience. I think, generally speaking, we do not lay out our ridges small enough; in heavy or flat land I always find that the grain on *narrow* ridges is the best, and recommend about nine feet as a proper width, and in no case, except on very sandy and porous soils, ought the ridges to exceed fifteen feet, in all cases to be rounded off, i. e. never flat in the centre or sides.

MANURES.

The time is much too limited to enlarge upon their variety and importance; the first great principle is *never to exhaust the land by severe cropping*; and the next great principle is to restore to it, in some shape or other, the properties which we have abstracted—by the system of cropping which we have pursued. We all know that manure benefits the land, but the thing is to know the why and the wherefore. Newton knew that an apple would fall to the ground, but it cost him years of study to know *why* it fell. So will it cost us farmers much time and attention to know what manures or stimulants or correctives are required under varying influences; our knowledge is but yet in its infancy; one thing, however, we do know, that almost all the strength of animal manure is in the urine, and not in the feces; and another thing we know that we are not by any means

careful enough in preserving this, the most valuable ingredient. The scientific farmers of the old country are taking every possible means to save the urine—making pits for its reception. I may safely add we ought to “go and do likewise,” using many other schemes for this purpose.

ONE WORD ABOUT STOCK.

It appears to me to be one of the greatest inconsistencies, and indeed absurdities with which we farmers can be charged, that we have individually and collectively, as Societies—taken much pains and incurred much expense to *improve* our breed of cattle, without making a simultaneous movement to procure the succulent food, the increased shelter, the extra supply of clover hay, without which these so called improved breeds certainly produce no improvement to the farmer. Without turnips or Mangel Wurzel or shelter or lay, our old Canadian cows are infinitely superior to any of these fancy breeds; they produce more milk on poor feeding—they stand starvation much longer—they are better suited to our climate, and are in every way better—unless we change our system of feeding, and furnish warm and comfortable housing; if we were to furnish these for our native Canadian cows, it is doubtful whether they would not in the end pay the farmer better than either the pure Durhams, Devons, or Herefords. Of these three I think the Herefords are the best for us, and the Devons the next best; the Durhams are evidently and deservedly going out of favor. The Devons are best for dairy purposes. The Herefords for beef and working oxen, and are hardier than either of the others, and have better hides, which is a matter of some consideration.

SHEEP.

As for sheep, there are none better than are to be found all over the Upper Province, we are not surpassed in any part of England, nor can there be a better sheep for our purposes than the Leicester and Southdown crossed, if only the cross could be kept pure and not too long intermingled. At the late shows of this Association, there have been sheep submitted to inspection capable of competing with the sheep of any country in the world, whether in weight of carcass, quality of wool suited to the wants of the country, or excellence of mutton.

The only thing that appears to call for special attention is to renew every four or five years for the pure Leicester, and pure Southdown; as in that time they begin to deteriorate, or in common phrase “run out.” Such indeed is the case with the best breeds of every thing else; and the same is the case with grain and seeds of all descriptions. In fact all nature, whether animal or vegetable, seems to delight in congenial change.

The stall feeding of sheep is, I think, a branch that might be attended to with profit, more than the stall feeding of oxen. The Yonge street farmers supply the Toronto market; and it is said at prices very remunerating. Some spirited farmers are in the habit of keeping their fattening sheep in a good yard by themselves during winter, and feed them three times a day with cut turnips and chaff, and occasionally some corn

ground with the cob, which are put in a manger placed against the inner wall of a warm shed, both yard and shed being well littered: for these they get from 15s. to 20s. each, which pays pretty well. Professor Playfair, of the Royal Agricultural Society of England, has proved by repeated experiments that five sheep fed under a *dark warm* shed, consumed less than one half the quantity of food consumed by five fed in the open yard or field, with an increase of 4lbs more mutton during six weeks. The argument drawn from this was that warmth in winter is an equivalent for food, and that the protection afforded was equal to a certain amount of turnips, and that, therefore, food may be economised by protecting our live stock from cold and wet during winter. The result of these experiments reads an important lesson to Canadian farmers. The railroads will before long almost equalize the price of beef or mutton, over the whole continent; let us be up and doing.

AGRICULTURE AS A PURSUIT.

The advertisement of the Johnstown District Agricultural Society, having specified that the medal is to be given not only for the best essay upon agriculture, but also *upon its advantages as a pursuit*; it may not be unadvisable to say a few words on this subject, though the scope for observation is very large, and the time allowed for reading the essay very limited. To comprise as much as possible in a small space, these few observations will perhaps meet the spirit of the resolution.

I would first observe that the amount of capital invested in the pursuit of agriculture, is safer than that invested in mercantile pursuits.

It is very seldom indeed that losses ruinous in their effect occur to the Farmer; whilst the merchant may by the loss of vessels, or by the constantly recurring fluctuations of trade, in one day lose the earnings of a whole life of industry, anxiety and care. It is a fact long since established and well known to a great many of our old inhabitants, that at least ninety merchants out of every hundred have failed and gone to the wall, whilst they themselves have stood the brunt of the severest storms—preserving their old homesteads not only unimpaired, but year after year improved and surrounded with increased external and internal comforts. The immense wealth accumulated by a few individual merchants is the exception to the general rule—not the rule.

The farmer, it is true, can never accumulate what is called a splendid fortune: but in this country particularly, he is seldom, if ever, reduced to poverty; he is in truth always in a position to feel that degree of independence which very few manufacturing or commercial men can arrive at; and occupying as he does such a position, his pursuits are not (as some professional and commercial men would have us believe) incompatible with the character of a gentleman or a man of education. It is utterly impossible for him to understand the chemical analysis of the soil upon which he treads, or its adaptation to the different crops which he wishes to cultivate, unless he be educated. I do not mean that edu-

education by which he can conjugate a Latin verb or dive into the classical lore of the dead languages, but that ten thousand times more important education *for him*, which will enable him to aid the functions of nature by the judicious and well-timed application of stimulants or correctives, or enriching substances, suitable to the varied requirements of the diversities of soil which every farmer meets with us in his agricultural career.

The idea "that any fool can farm" is now antiquated and an unjust stigma on our noble profession, one of the first advantages of which, as a pursuit, is, that *it requires enlightenment*; that it demands never ceasing improvement of our mental capacities, which tend to raise us in the scale of intellectual, therefore, happy beings—"Agriculture can only be carried out economically and successfully when treated as a science, nay, as the most important of all sciences, teaching the mode of raising food for the whole human race. Take for example, wheat. Science informs us by carefully analyzing the grain and the straw, that each contains certain mineral elements in certain clearly defined proportions. The inference must be that these elements are essential for its successful growth, and science by analyzing the *soil* will inform us whether it contains what is necessary to insure this growth, and by showing us in what property the soil is deficient will enable us to supply that deficiency in the most economical way, without wasting materials which may not be required, being already existing in the soil in sufficient quantity. Professors Way and Johnston have lately given to the agricultural world most important information as to the properties in the soil that are required for the successful production of each kind of grain, roots and pulse, which we are in the habit of raising; and the quantity of each of these properties which a good crop takes from the soil, and the easiest way of returning that property to the land, so as to maintain its fertility unimpaired. This is certainly a great triumph of science; let us hope that an agricultural Professorship in our Provincial University, will diffuse this knowledge over our rising agricultural community.

Another important consideration, being perhaps a local one, (or colonial if you will,) is this:—that in this country, where every farmer is the owner of the soil which he cultivates, he is called upon to exercise a lively interest and influence in the management of the internal affairs of the country and its general government. The capital of the merchant or mechanic being embarked in commerce or manufactures, he seldom becomes interested as a proprietor of the soil, and is seldom called upon to interfere in local affairs, the conducting of which is on that account left chiefly to the control of the farmers. Being then the lords of a rich, bountiful soil, and having the power to wield the destinies of our country, may we not be justly proud of our profession, and be zealous to adorn it in all things by industry and skill, and advancement in knowledge, practical and scientific.

Another advantage in the pursuit of agriculture

as contradistinguished from that of merchandize or manufactures, is the increased health and happiness of those who are not crowded into narrow spaces, but have ample fresh air and light around them. The annual mortality in large towns is much greater than in the country. In many of the counties of England the mortality is one in forty-five, whilst in large towns it is one in twenty-eight.

Thus it is seen, says Professor Guy, that mortality increases in the ratio of crowding, and many crowded parts of cities combine in a frightful degree all that is most offensive to the senses, most revolting to the feelings, most injurious to health and most fatal to morals. In one single metropolitan parish he shews that the gentry who inhabit open squares and broad streets live on an average 40 years, while the manufacturing and working classes who inhabit narrow lanes and dark cellars live only 17 years; and the country population live to the average age of 45 years; thus showing most distinctly the great advantage of a farmer's life in contributing both to health and morality; and most assuredly with them to increased as well as prolonged happiness and comfort and extended usefulness of life.

And finally I may observe that the very nature of the farmer's occupation, which leads him daily and hourly to contemplate the surpassing beauties of the animal and vegetable kingdoms, and their striking adaptation to the wants and requirements of man, lead him more than the townsman, more than the mechanic, more than men of any other occupation, to look through Nature up to Nature's God: to admire his works and to look with grateful dependence to Him for the continued supply of his bounty. The beautiful vicissitudes of the ever going and returning seasons, and the constant variations of climate remind him, above all others, that "though Paul may plant and Apollos water, it is God that gives the increase." And is not this a great advantage of the Farmer's life? And do not our gaols and our Law Courts attest that, above all others, the Farmer's life is the *moral* life, and therefore the *happy* life: and no one will deny that above all others, it is the *useful* life. For if "*he* be a benefactor of his country, who causes two blades of grass to grow where only one grew before;" how useful and materially important must be the life of the intelligent and industrious farmer!

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The next annual Exhibition of the Society, will be held in Toronto, Sept. 21st, 22d, 23d, and 24th, 1852.

DONATIONS TO THE LIBRARY AND MUSEUM OF THE BOARD OF AGRICULTURE.

The Secretary of the Board of Agriculture respectfully acknowledges the following books and specimens from FREDERICK WIDDER, Esq., COMMISSIONER OF THE CANADA COMPANY :

The Flax Grower, by G. Nicholls; Dickson on Flax Management; Warnes on the Flax Crop; Claussen on the Flax Movement; Flax—its manufacture on Schenck's Patent System, by Bunard and Koch; Deman on the culture and management of Flax; and Claussen's Prospectus of Patent Flax Company. Also 4 packets of dyed cottonized Flax; 2 specimens Flax-en Cotton; 2 do. Flax spun upon Cotton Machinery; 1 do. mixture of half Flax and Wool; and 1 do. Flax Flannel.

The above publications and specimens have only just arrived from England, and it is Mr. Widder's desire that a plain and practical series of papers on Flax culture and management, be prepared from these works, for publication in this journal.

All who feel an interest in the enduring welfare of this country will learn with pleasure, that it is Mr. Widder's intention to import from England, *Chevalier Claussen's newly invented machine for dressing flax*; which he hopes to exhibit in working operation, at the Provincial Agricultural Show, which is to be held in Toronto next September.

We have thus had the pleasure of again recording tangible proof of the enlightened views and liberal disposition of the *Canada Company*, in promoting the improvement of this young and rising Colony.

REGISTER OF PURE BRED STOCK.

Parties possessing blood horses, on any of the pure breeds of cattle, may have them registered in a book provided by the Board of Agriculture, by sending to the Secretary a correct and satisfactory pedigree, traced either to the English or American Herd and Stud Books. Such certificates must be properly authenticated, and written in a plain, readable hand.

The Agriculturist.

TORONTO, JANUARY, 1852.

A WORD TO OUR READERS.

We enter on our Editorial duties at the commencement of the New Year, with the encouraging feeling that brighter prospects and more extensive usefulness await our humble and unpretending sheet. The contributions which we expect to receive from time to time, through the Board of Agriculture, will undoubtedly be of a nature to give a much higher character to this Journal for practical utility than it could have previously possessed.

It will be our pleasing duty to record the state and progress of the numerous Agricultural Societies in this section of the Province, and to register such facts as indicate the advancement of our domestic manufactures, (which must every year assume greater importance,) and commercial operations. Canada is but just awakening to a consciousness of her immense resources and progressive capability. We are singularly blessed with a fertile soil, a healthful climate,—water-power, lake and river communication, unapproached by any other known portion of the world. In addition to these great natural advantages, we enjoy the inestimable blessings of free institutions,—not an inch of our soil being polluted with the breath of slavery,—and are animated by the feeling so congenial and ennobling to the mind of every true British subject, that we form an integral portion of that great Empire of freemen—unparalleled in the world's history,—upon which “the sun never sets.”

The vocation of the “*Agriculturist*,” is, as its name denotes, to improve and render more productive the cultivation of the earth; and the adjective, “*Canadian*,” prefixed, marks the limits of the field within which its labours are expected to be confined. As we shall now be

regularly in the receipt of the best Agricultural Journals of the United Kingdom, as well as of the neighbouring States, we shall study to keep our readers informed on the general progress of the art, by condensing articles of substantial merit; especially such as contain matter that can be made practically useful in this country. We hope to receive such a degree of encouragement as to justify an outlay for original Engravings of new implements and machines, improved breeds of cattle; &c., adapted to the wants of Canada. In a word, these and other improvements, which we have in contemplation, will mainly depend for their realization upon the patronage extended to us by the public. The extremely low price at which the paper is available to Societies, may be made instrumental in adding largely to their numbers; and it is in this particular way that we feel most desirous to make our journal serviceable. The Agricultural Societies of Canada have but just commenced the great work, which it is their mission to carry forward indefinitely. Our duty will mainly consist in offering in our periodical Visitations, a word of encouragement and instruction; and to record faithfully the actual progress made.

Although several of the numbers of this paper must necessarily contain, during the year, articles somewhat lengthy, comprising substantial matter that will, we trust, well repay a careful reading and digestion;—nevertheless we hope to be able to enrich each number, more or less, with short and miscellaneous pieces, original and selected, that will be of use either in adding to the material comforts, or improving to the minds of the various members of the domestic circle. And although our work is mainly and essentially material and secular, it is our earnest desire to conduct it in a spirit favourable to human progression and brotherhood, in reference to the higher and more enduring wants of man;—and whilst tracing the sequences of nature, as every hour exhibited to the intelligent and observing Agriculturist, we shall not consider ourselves precluded giving utterance to the appropriate reverential expression. With this hasty and imperfect statement of our plans and objects, and of the spirit in which we desire to carry them out,—we beg to close our remarks by wishing our readers,—one and all,—*a happy and prosperous New Year!*

AGRICULTURAL OPERATIONS FOR THE MONTH.

Having by this season of the year got pretty well through the most hurried work of the Farm, fill up your leisure by preparing fire wood for the

remainder of the winter and the coming summer; for scarcely anything can be more annoying than hauling wood during the muddy roads of Spring, or the hurried time of seeding, haying or harvest. And what man or master likes to hear the females complaining morning, noon and night of scarcity of wood,—and I know some that have had experience in this matter.

Another and very necessary occupation is the procuring of fencing; for what farmer does not require to renew or build new fences every year more or less? Bad fences injure the owner in more ways than one. They will cause your crops to be destroyed, and worse will teach your young stock to jump them, and then all fields, ill or well fenced, are in danger, for who amongst you have never met with a confirmed old breachy horse, ox, bull, or old ram, or even an old sow. I had an old favorite cow [because she was my first] that became so bad she would open almost any door or gate; and at last my only protection was to put a bell on, to tell her where-about, and then run. If your rail timber is too full of frost to split now, haul it where you will require the rails, and split it early in the spring. You will find this the best time for the purpose, for you can go about the woods and swamps with a sleigh, which is more convenient for the purpose than a wagon; and you can cross your fields in any direction without injury to your young wheat or meadows.

And if you want a straight and cheap fence, plant cedar or oak posts of 5 feet long, 6 inches in the ground, in a straight line where you require the fence, dig a ditch eighteen or twenty inches wide and twelve deep on each side, and eighteen inches from the post, taper up the earth to about fifteen inches wide on the top, and nail two boards of twelve inches each, and five inches asunder, on the posts; encourage grass on the slopes and shovel out the ditches every spring, repairing the embankments; and this will prove a good fence, and also a *drain* to open furrows into, and quite out of the way and with little waste of land. I have such a one on my farm, and I like it very well.

Look well after your cattle; keep them warm but well ventilated; feed regularly and waste not, for you will find it long till pasture, however well your Barns may be filled just now; unless like some farmers I have met with, who turn their cattle into the fields and woods as soon as the snow is off the center of them, leaving a white border round the fences and hill sides. Look well after your sheep; prepare a shed open on one side and that the least exposed is the best for them. I know a close building is not good; and if you expect early lambs be careful to select such ewes from the flock, and keep them in a warm place; for although early lambs are troublesome, they are valuable. Old ewes are best for this purpose, for they are generally better mothers; and then after the lambs are killed, they have time to fatten and be killed too.

Keep working down your straw stacks, under the young stock, as they are generally kept out, or your dung will not be fit for use, as I see a great many old straw stacks standing for years. It is an important principle in good farming to

convert straw, litter and all kinds of vegetable matter, as soon as possible, into manure for the spring and summer crops.

The weather during December has been unprecedentedly severe, and domestic animals ought to receive proportionate attention and suitable food. Fortunately last year's crop of hay was abundant, and in this section turnips &c. were plentiful. In very cold weather much food in the shape of uncooked roots is not good for cattle, and in Canada, we have not yet got into the way of cooking for the brute creation, as in the old country; but our turn will come by and by.

Ploughing was carried on pretty generally till the last of November. I ploughed till the 25th, and on the 26th we had a slight fall of snow, making sleighing very general till the 28th Dec., during part of this time, from about the 18th, the frost was more severe than I almost ever remember, indeed I am told greater than any time during the last thirteen years, the bay of Toronto was frozen as far out into the lake as I have ever seen, the steamers landing their passengers on the ice a mile or more from the entrance to the harbour; but all appearance of that severity has vanished, the ice receding far into the bay, and the roads all mud, and on the 30th we had quite a storm of thunder and lightning, accompanied by heavy rain. The thaw continued till the last day of the year, but on new year's morning all was frost, the ground frozen hard again, and unless we have some snow soon I fear the wheat will suffer, though it is now looking very well.

Before I close these remarks I would like to call the attention of our farmers and breeders to the subject of our Herd and Stud Books.

The Board of Agriculture for this section of the Province at their last sittings, voted a sum of money to purchase the British and American Stud and Herd Books, and Blank Books to record the pedigree of the improved Stock of this Province. With a view to facilitate such register the pedigree of all pure stock in the Province, if properly certified, and sent to Geo. Buckland, Esq., at the office of the Board in Toronto, will be entered without charge for the present.

"This is a privilege that I think will be appreciated by all Breeders, and I have no doubt but in a short time we will have quite a handsome commencement, 'considering our youth.'" I know within the last year there has been a large quantity of good stock imported into this Province, and I believe Mr. Huntingford, of Woodstock, alone imported for himself and friends about 8 or 10 Blood horses and mares, I suppose with a view of sustaining their good name in the west, when they shall have the Provincial Agricultural Show there, which I believe is promised them as soon as they have their Railroad completed.

R. L. D.

Township of York, Jan. 3, 1852.

MACHINE FOR DIGGING GUANO.—Mr. Souther, of the Globe Works, Boston, has completed one of Ous's Steam Excavators, an American invention, which is to be employed on the coast of Peru,

in disintergrating the beds of Guano, an operation which it is said it will perform with great facility. The machine is spoken of as a great triumph of mechanical skill. It is capable of taking up three shovelful of loose gravel in five minutes, the shovel holding from a yard to a yard and one half, cubic. It is estimated that with it two men can easily perform the same work, in the same time as would require one hundred and fifty common laborers.

THE SMITHFIELD FAT CATTLE SHOW.

The annual meeting of this long established and prosperous Society was held in the Bazaar in Baker Street, on the 9th and 10th of December; and, from the accounts which have reached us, it appears to have been in no way inferior to former exhibitions, except the number of animals exhibited being somewhat smaller. The attendance of visitors was very great, and the breeding and fattening qualities of some of the stock are said to have been, upon the whole, superior to preceding years. The extreme fatness, almost amounting to actual disease, formerly observed at these Shows, has of late years undergone a wholesome reformation; but even now many animals are exhibited whose fattening condition has been carried to an extent scarcely compatible with their adaptation for nutritious food, and certainly not with profit to the producer.

The Herefords appear to have fully sustained the high and increasing reputation which they have been progressively acquiring for several past years, and they carried off a large number of prizes. The Devons scarcely come up to an average, although certain new arrangements made in the classification are said to have been favourable to their chances of success. The short-horns neither were quite so numerous as usual in some sub-divisions, except in fattened cows and heifers, which both in number and quality far distanced, as might be expected, any other breed. The mere number of prizes, however, drawn by any particular breed for fattening qualities only, is no certain proof of its general suitability to all situations, and for all purposes. The pure bred short-horns, we think, take them all in all, will endure as many, if not more tests than any other established breed.

In sheep, the Leicesters maintained their usual high character; and, for long wools, the Cotswold may, perhaps, be ranked among the best. The Duke of Richmond, President of the Club, carried off the first prize for Southdowns,—a class that figured very favourably. The Pigs were nume-

rous, and generally of superior quality; Prince Albert (who also won prizes for cattle) obtained the 2nd prize for some excellent specimens of the Bedford and Suffolk breeds.

The number of implements and machines far exceeded any previous occasion, and this department alone constitutes an important Exhibition of itself. We observed the names of most of the English manufacturers, and the two American reapers. Hussey's and McCormick's attracted much attention; the former seems to have greatly gained of late in English favour, and bids fair to equal, if not outstrip, its hitherto more successful competitor. Mr. Hart exhibited a new brick and tile machine of novel construction, which is said to be economical and powerful in working. The seeds, dairy produce, and roots, were as usual of excellent quality, and the proceedings terminated, as on previous occasions, with a public dinner, under the administration of the noble President.

LECTURE ON AGRICULTURAL ASSOCIATIONS.

On Friday evening, December 5th, a lecture on "Agricultural Associations"—tracing their Origin, Progress and Advantages, was delivered in the Toronto Mechanics' Institute, by George Buckland, Esquire, Secretary of the Board of Agriculture in Upper Canada. The learned gentleman commenced by adverting to the principle of Association, arising from man's physical and moral necessities. In a state of absolute independence, man was a being nowhere to be found. The necessities as well as the luxuries of life, in every stage of social progression, are results to which thousands, besides the possessors, contribute their labours. The advantages of men associating together for promoting a common object, were illustrated in reference to religious, commercial and scientific Societies. The results of such combinations have been, upon the whole, highly conducive to the moral, social and intellectual improvement of human society. If so much has been accomplished by the principle of association in diffusing the light of Science and the blessings of Christianity, it could not but be interesting and useful to inquire what advantages Agriculture,—the first and most important of the arts, had derived from the same source. One striking peculiarity marks the farmer's position;—its comparative isolation, which renders frequent personal intercourse, by means of Societies, very difficult, and in newly inhabited countries, almost impracticable. The great diversity found in soils, within even small areas and the varieties of climate, induced by a combination of several causes, all tended to render agricultural experience anomalous and contradictory in the early history of the art. Considerations of this nature will account for the absence of agricultural societies, till population had so far advanced, that

second and third classes of soils were taken under culture, when, in fact, agriculture as a systematic pursuit, may be said to commence.

The first association that attracted public attention, and of which we have any reliable accounts, was established as early as 1723, and called "*a Society of improvers in the knowledge of agriculture in Scotland*": it existed about 20 years, consisted chiefly of landowners, and was the means of reclaiming Scottish agriculture from the extremely low condition in which it then existed. The introduction of cabbages and root crops into field culture, and lucerne and sanfoin for forage, may be traced to the society of Improvers. But the greatest good they did was preparing the Scottish mind for the *Highland Society*, which was instituted in 1784, and in three years after was sanctioned by a Royal Charter;—its objects at first were few and confined to the Highlands of Scotland; they were however, gradually extended, embracing the whole of North Britain, and in 1834, a supplementary Charter was granted, and the name of the association altered, expressive of the enlarged sphere of its operations, to *The Highland and Agricultural Society of Scotland*. It is not too much to say that this venerable society has been the principal means of raising the character of British Agriculture to its present advanced condition, and its influence has been felt in every nook and corner of the empire; and indeed the whole civilised world. Its Annual Exhibitions of Live Stock, Farm Implements, and Machinery, its Prize Essays and Reports, published in quarterly transactions, its liberal premiums for scientific investigations, have all tended to make, what a large portion of Scotland now is, a model of Agriculture for the world. The lecturer attributed the high esteem in which the Scotch agriculturists were generally and deservedly held, both at home and abroad, to the admirable parochial system of education, which had long prevailed in that country, in connexion with its efficient agricultural societies and systems of farm management.

The Board of Agriculture, under the able presidency of Sir John Sinclair, was established in 1793, the justly celebrated Arthur Young being its Secretary. This body received liberal aid from government, and was the means of amassing a large and valuable amount of agricultural knowledge, in the shape of county reports, prepared by able and experienced men, practically conversant with their respective localities. The Board was dissolved in 1813; and if it had done nothing more than bring the searching intellect of Sir Humphrey Davy, into the wide and interesting field of scientific agriculture, in which that philosopher gathered fresh laurels for his brow, it would have deserved well of the British nation.

It may be asked, was England and Ireland doing nothing for agriculture by voluntary efforts during this long period? The honour of establishing and efficiently supporting a great national association indisputably belongs to Scotland, and it was a long time before any analogous society was formed either in England or Ireland. Mean-

time, in England especially, a number of local societies were formed, and in active operation; among those deserving a prominent place is the Smithfield Christmas Cattle Show, which has gone on progressively improving and enlarging the sphere of its operations; and it now comprises every thing of interest to the British farmer, as well as grazier. In 1837, at the anniversary dinner, its president, the late ever to be honoured Earl Spencer, proposed the establishment of a national association for England; the measure at once found favour, and next year, 1838, *The Royal Agricultural Society of England* was formed on the same principles as the Highland Society. In a few years the English Society numbered seven or eight thousand members, and promised to outstrip its parent. Its annual exhibitions, Journal of transactions, the encouragement it has given to original research by men of the highest scientific merit, have already done much in advancing the agricultural art in England; and it is not too much to say that this Association is now the most influential, perhaps, in the world.

Ireland was not long behind in this movement. In 1841, *The Royal Agricultural Improvement Society of Ireland*, was commenced, based on similar principles as those already noticed. Its exhibitions have been of a high order of merit, and of considerable extent. The number of District Societies, in connexion with it, has been annually increasing, and a marked improvement in the agriculture of many parts of the country, is very perceptible. The Irish Society commenced the publication of a quarterly Journal and transactions, in 1848, which appears admirably adapted to the wants of the country, and many of its articles in point of literary and scientific merit, as well as practical usefulness, are in no way inferior to the transactions of the two older Societies.

Several countries of the Continent of Europe, and most of our Colonies, have Agricultural Societies; the United States have shown a determination not to be behind in such matters, particularly our neighbour, the State of New York, whose society is one of the largest and most efficient of any in existence. It requires but little penetration to perceive a common connexion running among most, if not all those Societies; they can be traced up to the little unostentatious band of Improvers, that united themselves together in Old Scotia, well nigh a century and a-half ago! This should remind us of a great principle of the natural and moral government of the Deity, that causes and effects are so surely connected, that no judicious effort in a good work, can be ultimately abortive.

In Canada the cause of agricultural improvement was not altogether dormant. Societies for the promotion of this valuable art were formed at a comparatively early period in both Upper and Lower Canada, a few of them more than a quarter of century ago. But in 1845 an agricultural law was passed for regulating the Societies which were springing up in almost all the Counties and several Townships of the Upper Province. The annual grant made by Parliament to Agricultural

Societies must be considered liberal. Still there was felt by the more thinking and enterprising farmers a want of system, and of a Society embracing the whole of the Upper Province. He [Mr. B.] was informed that the Agricultural Society of the County of York [formerly the Home District] has the honor of originating the Provincial Association. The suggestion was made by the President, Mr. E. W. Thomson, at the Spring fair of 1846, meetings were afterwards held in Toronto and Hamilton by gentlemen favorable to the object, and the result was the organization of the Provincial Association; and matters were so expedited that a very respectable exhibition was holden in Toronto in the fall of 1846. The Association held its next show in Hamilton in October 1847, under very great disadvantages as regards weather. Owing to this, and other disadvantages almost certainly attendant on all new projects, the Society had to encounter pecuniary difficulties:—but by the Aid of Government and the zealous support of its earliest friends, it was soon enabled to recover its position, and it may now be safely said that the Provincial Association has already done much good in a variety of ways, and that it possesses the confidence of the country.—At Cobourg, Kingston, Niagara and Brockville, where the successive exhibitions have been held, there have not been wanting ocular proofs of the Society's increasing usefulness. Great moral and social benefits arose out of Associations of this nature; all classes and parties met on neutral ground, for the promotion of objects in which they had a common sympathy and interest; and thus a kindlier and more generous spirit was infused into the heart of the community. Agriculture, intelligently pursued had a direct tendency to enlighten the head and liberalize the heart;—each of its processes involving considerations of the laws of Infinite wisdom, binding man to his race by the experience of mutual sympathies, wants and expectations.

Mr. B. remarked at some length on the advantages likely to arise from the new agricultural statute passed last session, and from the Board of Agriculture, which is just getting into operation. All the Societies will now be connected on a uniform system, and their reports, or the substance of them, annually published. Much interest had been lost to the public mind, with regard to Agricultural Societies, for want of system, and publicity, by means of reports. We have only given a mere outline of the lecture, which was frequently applauded; and concluded with an appeal to the audience to prepare and support the exhibition of the Association, which is to take place in the City of Toronto, in September next.—*Globe*.

USE OF TAN AS A MANURE.—The *Journal of Agriculture* gives an interesting and apparently satisfactory experiment of the fertilising power of *rotted tan*, in the growth of potatoes. The potatoes were either planted on the tan or were covered with it, and the result was that both in quality and bulk, the crop thus treated, was superior to other parts of the field when different kinds of manure were used. In experiments, however, of this kind we are liable to be misled

by the operation of undetected causes. Repeated trials under circumstances well understood and defined are quite necessary to a correct general conclusion.

SHEEP HUSBANDRY IN CANADA.

[We copy from the *Cobourg Star*, the following excellent essay, read at a recent meeting of the members of the *Hamilton Farmers' Club*, by Mr. Hume, one of the members. The present extremely low price of grain renders the subject particularly opportune, and we are sure that our readers will thank us for giving Mr. Hume's paper without curtailment. We must grow more wool, and make more cloth in Canada, in order to prosper. We hope the farmers of other districts will copy the useful example of their enterprising and intelligent brethren of Newcastle, and hold occasional meetings for discussion and mutual improvement during the comparative leisure of winter. Want of space compels us to abridge the observations of several of the speakers;—John Wade, Esq., President of the Club, occupied the Chair.]

Turning my attention more particularly to the subject chosen for discussion at to-day's meeting, its importance at the present moment has been forcibly impressed on my mind, and I feel sorry that the preparing of this paper was not accorded to some hand more able to do it justice; whilst doing my best, however, to open the subject, I trust that my remarks will merely be received as the basis of a more thorough investigation.

Late changes have much affected our position as Canadian Farmers, and whilst, with the rest of the British Empire, we are brought under the operation of Free Trade, we labour under peculiar difficulties induced by the heavy Tariff of our nearest neighbours, acting along with a very restricted currency at home, which paralyzes the efforts of our native industry in its attempts to establish a home market. Industry Canadians have, enterprise too, though, by some, their possession of the latter quality has been denied. Whence else arises the rapidly increasing exportation of our breeding stock to even the older States of the Union. Whilst those of our neighbours who venture to visit our barbarous shores, seem astonished at the advanced state of cultivation where they had expected to find only a half reclaimed forest. With the political remedies for these difficulties we have nothing to do in a meeting like the present; but as men who have to earn our bread from the soil, it behoves us to watch the course of events and follow up such channels as may lay open to us, a means for profitably employing our capital and labour. In the present crisis, circumstances seem to have directed the public mind rather in the course embraced by to-day's discussion,—an increased demand for breeding sheep seems to indicate a considerable desire to invest farming capital in

this line, and certainly entering on a more extended sheep husbandry, it is of the utmost importance that a proper selection be made of the class of stock and mode of management best adapted to yield us a profit both individually and as a community.

The sheep has from the earliest times furnished a source of profitable occupation to mankind. Abel was a keeper of sheep, and through succeeding generations, both before and after the deluge, the tending of flocks formed the employment of a large part of the population of the earth. That this business was a source of profit in early times cannot be doubted, but their flocks ranged over extensive plains without an owner, under climates where a plentiful supply of food was at all seasons provided by nature, little manual labour was required, and pasture was easily renewed by a constant change of place. From this mode of life, under a beneficent climate, arose the songs of the poet of the ease and happiness of a pastoral life. An age advancing, amid refinement and luxury—look back with envy on the ease of more simple times when refinement and luxury were unknown. Unknown also was the anxiety and labour entailed by their gratification. But such a mode of management can only be realized in the earlier stages of society, or when population being small, the market for the surplus produce of your flocks is at a considerable distance. Such a style of husbandry is now realized in Australia in a certain degree, it is yet continued in the interior of Spain by these amid a numerous population, it is now only maintained in a somewhat sickly state by vigorous governmental enactments.

We know of no animal so capable of enduring a great variety of climate and situation as the sheep. And this he does not by turning to the elements a stubborn front, but, with the meekness of his tribe, he entirely alters his character and habits under the influence of varied localities. We find him in every diversity of situation from the storms and ice of Cape North to the parched sands of Sahara. The sheep of the mountains of Tartary, covered with a coat of shaggy hair, scarce seems the same animal which produced our fine merino wool, and it would be difficult to trace the blood of our Leicester and Teeswater in the hump-backed Persian, or the fat rumped sheep of the Cape, whose tail alone, we are told, forms a joint large enough for the table. This singular facility of adaptation peculiarly fits the sheep to be the friend of man—a companion under his ever varying circumstances, and forms the ground work on which we have to build our present observations.

It would be well, probably, to consider what class of this animal is adapted to various localities, taking into our estimate both the character of the sheep itself, and the sources of profit likely to arise in certain positions. And by examining the capabilities of our own country, to come to an approximate opinion as to how far it is adapted to a sheep husbandry, and to what class of that animal its resources are most fitted. First, then, let us take those countries which at the present day may be called pastoral—as for example

Australia, some parts of Spain, the finer portions of S. W. Asia, and perhaps some parts of Hungary—such localities may be characterized generally as thinly populated, with a mild winter. Here their flocks roam the year round over extensive pastures; are seldom housed, and never hand fed. The market is considerably distant. The object in such countries is to obtain a fine fleece, which being of higher or even double value per pound as compared with coarser wools will diminish the percentage for carriage and marketing, whilst the small demand for mutton at home, and difficulty of its exportation, makes it a very inferior consideration, the best parts only of the flesh are used, and the rest boiled down or thrown aside. What we call the finer points of the animal are neglected, or rather studiously kept down, as a superfluity of flesh in those parts would only unfit the animal for his position. Travelling frequently in quest of pasture or water, and often exposed to severe drought on arid steppes and under a torrid sun. A large fleshy animal covered with long wool, would here rapidly sink under his own burthens, and disease and death would defy the exertions of the small number of attendants usually afforded in such countries. In such a position, then, a sheep seems required fine and not too heavy in fleece, with considerable length of leg, not too light bone, and so little disposed to obesity that he can carry himself through considerable journies without perceptible fatigue or exhaustion, as fatigue, exhaustion, or any species of weakness affecting the secretions must be injurious to the texture and growth of the wool.

Advancing into more civilized regions we find certain districts thinly inhabited from the sheer inability of the soil to repay, by its produce, the labours of a more extensive population. Cattle on such lands hardly find sufficient bite and shelter, but here the sheep may often be kept to advantage. In such a position the market is often comparatively near, both for wool and mutton,—the wool need not be so high in quality, to pay for a short transport, while the mutton here becomes an object of consideration. The large heavy sheep cannot be kept on such land, but we require a variety whose bulk can be maintained on a comparatively deficient herbage, whilst his wool requires to be at the same time heavy enough to shelter him from the inclemency of the weather, and light enough not to encumber him in travelling over a considerable range for his food, often over hill and dale, bog and morass, where a heavier carcassed and heavy woolled sheep would sink from sheer weight. This was strongly exemplified in many parts of the North of England and South of Scotland, some forty or fifty years ago. At the first introduction of the Leicesters into these localities—they succeeded admirably on the more level lands. Seeing this, many of the farmers of rougher, barer grounds must follow the fashion, and frequently placed the heavy Leicester sheep on land where he must run over many acres to seek his food, often wading mid-leg deep in bog. The result was what might have been expected, ruin to the farmers; and ignorance gave an evil name to a most valuable class of animals. I know it is

maintained that the fine woolled Merino fleece is more impervious to cold than the heavy Teeswater. It may be so to sheer cold, but a certain degree of depth of wool combined with fineness, seems to afford a greater degree of shelter from the cutting blast and driving sleet; otherwise, why in more northern climates, as Saxony, and North Hungary, is it indispensable that the Merino be sheltered in winter, whilst the houseless Cheviot seeks his only shelter on the barest side of the hill top, where he knows himself best secured from the overwhelming snow drift.

Thus is pointed out the peculiar home of the middle wool. Clean limbed, and compactly formed, with a fine transparent ear, and clear forehead—he carries his mutton high, whilst he displays many of the feeding points, making him eagerly sought after by the grazier and turnip feeder; at the same time that his rougher coat is well adapted to resist the inclemencies of the season with which he has often to contend.

Again, proceed we a step to the rich vales among a teeming population, gathered together by the superior productiveness of the soil, easy means of transporting along the flowing rivers, and abundant employment afforded by increasing wealth and luxury; what farmer would not here be emulous to see the heaviest of our heavy Teeswaters lying around his sheltered pastures, where they need hardly to walk around to satisfy their hunger, while the purveyors for a numerous population have all the fattest stock around bought up, even before it is brought into the market. Here the largest amount possible of mutton is required, and the sheep is able to carry it round with him the short distance he needs to go in search of food; and lying half the time, his constant tendency is to become fatter and fatter. A heavy wool is here also an object; the distance of transportation is nothing, and among such a population it is always required, as a country increases in luxury, the consumption of the heavier wools seems to increase in a greater ratio than of the fine ones—more of the former class seems needed for articles of luxury—as carpets, and all the endless variety of stuffs and merinos, whilst the demand for the fine wools, which are mostly used for body clothing, does not increase in the same ratio. This seems fully proved by the long woolled sheep having extended over almost every part of England where the land is adapted for them, and by a rapidly increasing demand for the same class on this continent.

With these premises let us examine the characteristics of our own country as to its adaptation to a sheep husbandry in any shape, then as to the class of sheep most desirable under our present position to be cultivated. We have, generally speaking, a rich soil affording a fine heavy bite abounding naturally in white clover, small enclosures, affording with the patches of wood great shelter, small farms, on each of which a proportion of horned cattle and horses are kept as well as sheep. A severe winter forces us to house and hand-feed most of our stock, in order to enable them to resist its severity with any degree of condition. We have considerable demand for mutton, the smaller carcass being preferable to

keep during our hot summers, and to my ideas more healthy and fully as cheap as pork. We have also at present a ready sale for wool, whilst on the other hand the high rate of the labour market, joined with the incapacity of the hands generally to be found, makes a laborious species of husbandry, if not profitless, most harassing to the farmer. With these characteristics the country can never become a purely pastoral one, but an opportunity is presented of keeping a considerable number of sheep which following the heavier stock, in a continued change of pasture, would consume much of the food which would otherwise go to waste or tend to produce a coarse herbage. A due attention in this respect, joined with occasional top dressing, would keep our new pastures longer in a productive state and produce on old grass, a cleaner, thicker and healthier bite. Again a moderate stock of good breeding ewes would, I am satisfied, pay as well as anything to consume a proportion of turnips, which crop is now admitted on all hands to be one of the best fertilizers of a farm as well as one of the preparatives for spring wheat. In the selection of this country as a place of emigration, farmers are doubtless mainly influenced by the low value of land, affording them the means of producing an article at as low a price as the agriculturist who is situated nearer market, and employing cheaper labour. In this position the great advantage would seem to lie in the application of his own labour to as large an extent of land as the farmer can probably manage. To my mind a moderate extension of our present sheep husbandry, seems to offer the most ready means of accomplishing this object. The substitution of clover in a great measure for bare fallow in the preparation of our lands for wheat would much diminish the amount of manual labour as well as spread it over a longer season and keep our barer soils either of sand or unmixed clay in better heart, whilst instead of glutting the market, with the article of wheat in, which our disadvantages are at present very great, we should have a certain proportion at least of our produce of a different character, bringing into the market a considerable supply of wool, on which the labour expenses are not so great, and which from its easy carriage seems quite as secure of a market. In this course of husbandry, I should strongly recommend the covering of all stubbles with clover, and the general occupation of lands not immediately required for crop, with rape, rye or some other green food, it will afford much extra fodder, whilst there is no doubt that all green crops, grown and consumed on the land before they go to seed, instead of impoverishing the soil, tend greatly to enrich it, by the large proportion of their food, which, whilst in a leafy or succulent state, they derive from the atmosphere. When the farmer's capital is small and his means of realising cash by sales limited as it now is here, a considerable proportion of sheep on a farm affords a quicker means of turning our money than cattle, which must usually be kept 4 or 5 years before they are marketable, at the same time the sums being in smaller amounts and more divided as to time the cash is easier to collect.

While on this part of the subject, I would

suggest that our attention be turned as soon as possible to the establishment of regular fairs to facilitate the sale of stock. I know the difficulty arising from our present scarcity of ready money, and that might surely in some degree be overcome. Whilst the advantage to the community generally would be incalculable. What an amount of time and labour is at present spent, in finding any article of stock you may require, whilst it is as difficult to find a customer when you have an article for sale. The farmer near the town who can easily obtain labour for raising root crops, has every facility for feeding stock, and who is conveniently situated for selling it to advantage, must also at present raise his young stock, which could be reared at little more than half the price by the farmer in the back countries, whose hay is often worth only 4 or 5 dollars per ton in the yard, whilst on the other hand the back farmer is compelled to fatten off his stock, in a situation when he has often a great difficulty in effecting sales; or when he can effect them, is at the mercy of the jobber who must make all out of him he can.

As to the class of sheep adapted to our country, under present circumstances, the remarks already made point at once to the heavy Leicester or Teeswater, we want a considerable supply of mutton for home consumption, and who knows but Brother Jonathan's taste may soon incline that way too, particularly when he finds there is something better to be had, than his lean scar-mouches called merinos only fit when a dozen years old to walk into the Chandler's pot, we want an animal to stand our winter's frost, and I often fancy when I look on some of the aforesaid anatomies what would be their appearance after a night of 30 below zero without their bitters? Why they would be frozen all standing, half the oats in Hamilton would scarce suffice to keep a good sized flock alive, and I opine we should have to teach them how to eat turnips. We want inward heat which can only be kept up by a little fat outside, we want early maturity, and the Leicester or Teeswater is your only sheep to feed off after one winter and two summers, if you add another winter you greatly increase the proportion of labour and cost, while sheep of a variety of ages are hard to be maintained on your contracted pastures. The oldest knows best how to forage for himself, the bell wether is ever the fattest of the flock, again in woods the Teeswater averaging 6-8 lbs. at 7 will produce more than the Merino clipping 3 lbs. at 2s.; the latter I have found, after careful inquiry, to be something like the average of what are called fair flocks in the U. States. The very superior varieties of French Merinos do not seem to have been yet sufficiently tried on this continent, to enable us to express an opinion as to their adaptation to our position. The proportionate value of these may alter, but I should rather incline to think, for the reasons already given, that any change would be in favour of the heavy wools. Countries of a more pastoral character where the mutton is disregarded, can at all times supply the full complement of fine wools, whilst we shall have to fight zero and the winter nights with thick carpets and tallow candles, and who knows but when a change

in our present monetary system has altered our already extensive real property into available capital for the employment of our native industry, who knows I say but this very sheep husbandry may in the home manufacture of woollen, open up a source of employment to a new food-raising population, which may be the chief consumers of our own produce, we may then perhaps be proud of teaching the land of freedom the way to use free trade, for we should be in a very different position had we only a small proportion of our breadstuffs to offer for sale, to a neighbour who required them, instead of begging a market for our present large surplus. We should then be prepared to force that reciprocity now so eagerly desired, as were we not driven into the market by our own necessities, the purchaser would have himself to pay any amount of duty he might be fool enough to impose.

My view then of the present subject is that a considerable extension of the culture of sheep in our present mixed husbandry, might be with advantage effected, partly as diminishing the excessive supply of wheat in the market, partly as enabling us to raise that wheat at a lower cost, by the cheaper mode of preparing the land with clover and root crops as substituted for bare fallows. As affording a class of investment in which our farming capital will be more moveable, affording an opportunity of carrying out along with our present principle of small profits, that of quick returns, at the same time that it will be bringing our stocks gradually into a preparedness for the only state of things which I think at all compatible with our future prosperity, an increase in our home manufactures, an advance in which must cause a proportionate advance in the home demand both for wool and mutton. A moderate increase of this husbandry affords the means of taking advantage of our position in employing a larger extent of land with less of the at present costly article of labour, while a less proportion of the labour will be of that severe and hurried character so trying to every farmer in Canada.

My view of the class of sheep best fitted for our purpose having been already pretty decidedly expressed, and this paper having stretched itself somewhat beyond the usual bounds, I shall leave for another meeting that part of the matter which takes directly hold of the management of our sheep stock, and I hope some more experienced shepherd among us, will see it his duty not to let the subject drop, but endeavour to enlighten us on a point on which I am sorry to find there is generally too little known among Canadian Farmers.

Mr. Wright was of opinion that the Leicester, or a cross between the Leicester and the Teeswater, was the best breed of sheep for us at present, judging from his own experience; but from what he had read he thought the Southdown a very valuable breed of sheep; he did not approve of short woolled sheep, although they were in favour with the manufacturer, yet he thought two pounds of Merino wool was not equal to six pounds of Leicester wool; thought that Burs and other weeds were seriously injurious to the wool,

and hurt the sale of it; that there was a good demand for mutton in this neighbourhood, and that our little market would compare favourably with much larger towns; had been in Rochester, Kingston, &c., and our own market showed finer mutton than any of them, which said a great deal for the farmers in this neighbourhood; from his stock of ten breeding ewes, he had cleared in lambs and wool, £22 16s., which was 200 per cent., and which was a very good return; had sold some ram lambs at a good price, which made the return larger, but thought that in an ordinary way, allowing a lamb and a half to each ewe, and a fair price for wool, they would double themselves each year.

Mr. Page said he knew very well that his friend, Mr. Hume, would not be content to wash and dip, and feed and shear, but that he would do his work thoroughly; and dye, and spin, and wear, and dress, and press, and finish it completely; he thought the sheep one of the most useful animals the Almighty had committed to our race; that it supplied his wants of food, and raiment; the first want of man was food, which it supplied of an excellent kind—their raiment as clothing, nothing can be more comfortable than flannel, and all the different cloths made of wool—and thought it did not directly supply fuel, yet, as we must often substitute light for heat, it might be said to supply that also—then the skin when tanned furnished material for the shoemaker, the bookbinder, &c.

Mr. Bourn was endeavouring to have a cross between the Leicester and the Southdown; he found their mutton more approved of than the pure Leicester—the lambs would weigh when three or four months old, about 50lbs.; found the wool of this cross finer than the Leicester; thought it was not much approved of at the Factory.

Mr. G. Underwood had long been accustomed with a breed of sheep which he had hardly heard mentioned here—the Cheviots—he thought they would make an excellent breed for this country, as they were both hardy and fine woolled. In the South of Scotland, where he came from, a cross between the Cheviot and the Leicester was considered the very best feeders—they put Leicester rams to Cheviot ewes, and had known the lambs sell for, from 20s. to 22s. a head.

Mr. Hume had thought a good deal about the Cheviots, as he believed that he came from a farm where they kept the finest blooded Cheviots in England; had found a cross between the Cheviot and Leicester very profitable; but thought that on our fine pastures we might as well keep larger sheep. Should fine wool continue in favour, it might be worth while to try the Cheviots.

Mr. Radcliffe was glad he had come, as he had heard some very valuable information, thought the Cheviots were not so much domesticated as the Leicester, were wilder and more restless, and would be often to break over fence than the quieter Leicester. When he was in Scotland, they divided their sheep into three lots, and their old ewes sold for 35s. a head. Said the Butcher gave us too little for our lambs, thought it was better to keep them till they were a year old, found the burrs a very great nuisance.

Mr. Mason had rather gone out of sheep breeding lately, thought he never saw a finer climate than ours for sheep, we had not so many cold rains as they had in Britain, never saw his sheep suffer much from the cold, though they did from the heat; he certainly had a fancy for the Leicester or rather a cross between them and the Teeswater; he found the burrs very troublesome, he had what he would call some pretty good Leicester sheep. Last year he sold four sheep and a lamb, got £15 for them, thought that would pay as well as wheat, thought the Butcher did not give us a fair price for our lambs.

Mr. Wade said the question was what breed of sheep would yield us the most money. In England, wherever they have rich fertile land, they keep the Leicester, the Teeswater, the Cotteswold, and other heavy sheep, and on high land the Cheviots and other lighter sheep, adapting the sheep to the land; his experience was rather against Bakewell Leicesters—he found they were apt to lose their wool in spring and thought them not hardy enough for us. And though they laid on fat very fast in summer, they were apt to lose it in winter and come out bare in spring, he believed that his father was the first to introduce the English breed of sheep to this neighbourhood, he got some Teeswater and Leicester ewes, and he always found it was very difficult to bring the Leicester ewe through winter and save the lamb. He thought it was worth our while to turn our attention a little more to sheep husbandry than we used to do now that wheat was so low. He found that there was quite an inquiry for our sheep on the other side of the Lake. He once had a notion, as fine wool was so much in demand, of trying some Merinoes, but since he saw so much inquiry for Teeswaters, he thought he would keep to the stock he had, thought that though the Cheviot was a very valuable breed, yet as our land was generally fertile, we might as well keep a large sheep.

A vote of thanks was given to Mr. Hume for his excellent essay, who agreed to the request to read another paper in continuation of the same subject before the Club at its meeting in January.

WALTER RIDDELL, Secretary.

EXPENSE OF KEEPING SHEEP.—The *Maine Farmer* restricts the annual expense of keeping a sheep in that State at one dollar; while others make it considerably more. An estimate in the New York State Agricultural Transactions make the amount nearly two dollars. Of course these calculations are all subject to many modifications, such as the varying price of fodder, &c., as influenced by seasons and locality. Some farmers in the Eastern States estimate the cost of growing wool at a quarter of a dollar per lb., and think that at a less price the business of sheep farming is unprofitable. We could like to have the opinions of Canadian farmers on these matters. Wool-growing is evidently an improving business at present; and there can be no doubt among practical men that proper shelter and a liberal supply of nutritious food, whether to sheep or cattle, is the most profitable course a

farmer can pursue, always premising that his animals are of the right kind.

DURHAM CATTLE: A CHALLENGE.

SIR:—I beg leave to submit, through your Journal, the following proposal for a sweepstakes, to be decided at the General Meeting of the Agricultural Association, which holds at Toronto in September, 1852; and I beg leave, also, to state that in confining the subscription to Durham Cattle, I have no design to depreciate Devons, Ayrshire, or any other breed, which are all valuable animals in their way, and may, perhaps, some day, extinguish the Durhams.

At present, *Improved Short Horns* stand high; I, for one, feel no doubt of their maintaining their distinguished position; always providing that due skill and attention shall be paid by Breeders.

I hold it to be quite indispensable, that animals intended to compete should possess *pedigrees*, either included or connected distinctly with the British or American Herd Books:

CONDITIONS OF COMPETITION FOR THE BEST PAIR OF YEARLING HEIFERS.

- 1st. The subscription to be not less than £2 10s. each subscriber, nor to exceed £12 10s.; and to be paid in the hands of the Secretary of the Association, before competition. If subscribers fail to produce Stock, the forfeit shall be half the subscription.
- 2nd. Each subscriber may exhibit any number of pairs, provided they are put together in pairs, before competition; and no extra sum is required, beyond the one subscription.
- 3rd. Correct Pedigrees of both Sire and Dam, traced to the British or American Herd Books, shall be produced, and the Judges shall have power to reject any which are not, in their opinion, satisfactory.
- 4th. The Board of Directors of the Provincial Association shall be requested to select and secure the services of Three competent and unbiassed Judges.
- 5th. The Heifers must not be out of their *second* year at the time of competition, or in other words, they must be Calves of 1850, and born and bred in Canada.
- 6th. Intending subscribers will communicate with the Secretary, prior to the 1st of May, 1852, at which date the subscription Book will be closed and details arranged.

Yours truly

ADAM FERGUSON.

To Geo. Buckland, Esq., Secretary, &c.
Woodhill, Dec. 29, 1851.

DEATH OF S. W. COLE, Esq.—We learn from a recent number of the *New England Farmer*, that the late Editor of that well conducted journal is now no more. Mr. Cole has for many years been favorably known to the American public, not only from his connexion with the "Farmer," but also for his "American Fruit Book," and a


useful treatise on the "Diseases of Domestic Animals;" books that have passed through several editions. We quote from his memoir the following beautiful paragraph, indicative of the hallowing influences of rural taste and pursuits, when accompanied by a useful and virtuous life:

"After a long and painful sickness, the subject of our remarks died in the full possession of his reason, and of well defined hopes of a happy immortality.—Glorious anticipations of Heaven cheered the prospect of his passage through the dark river, and no clouds of despondency or murmurs of discontent disturbed the calm serenity of his departing moments. So gently did life ebb away, that

"We thought him dying when he slept,
And sleeping when he died."

Our friend was a steady and earnest laborer in the field where his lot was cast. The natural, was ever to him the beautiful. He shrunk from the busy walks of life, and found satisfaction and subject for deep contemplation in the open field, the garden, or the umbrage of the dim forest. This ruling passion was found strong in death. "Lay me," said he, when the feeble flame was but glimmering in its socket, "lay me in some quiet nook, under some shrub or tree, and I shall repose in peace." With pious care, the living have regarded this pleasant wish. Under the interlacing branches of trees which were almost spiritual with him, gentle hands have laid the worn body most gently down. Voices which once came in angel-tones to his ear, will still attune their plaintive notes above his head, and mingle with his free spirit, in the shades he loved so well."

PREVENTION OF CRIB-BITING.--This injurious habit in horses, hitherto regarded almost as incurable, appears now to have received an efficient check in a very simple and inexpensive arrangement by Sir Peter Lawrie. Most of our readers are aware that crib-biting is a practice so injurious to a horse as to constitute legal "unsoundness." The animal seizes violently the manger or some other fixture with his teeth, arching his neck, and sucking in a quantity of air with a peculiar noise. This habit is most frequent in young horses, or such as are highly fed or underworked, and curious enough, appears to be contagious, as one confirmed crib-biter will inoculate others with the practice if allowed to associate. Muzzles, neck-straps and several ingenious contrivances have been used, with but little success. Sir Peter's remedy simply consists in preventing the animal from seizing the manger or any other object while tied up in the stable, by boarding over the space between the bottom of the hay-rack and the outer edge of the manger, forming a steep inclined plain. Portions of the boards can be partially removed to enable the horse to eat at stated times. This simple precaution is said by the most eminent authorities to be perfectly effectual in the prevention or cure of crib-biting.

 "Scientific farming" is the ascertaining of what substances the plants you wish to raise are made, which of these substances are wanting in your land, and what manures will supply them.

SOLIDIFIED MILK.—A few cakes of the newly invented solidified milk have found their way to this country. The article resembles, in color, consistency,

weight and feel, cakes of pale yellow soap. One lb. grated into boiling water, will make several gallons of good milk. It is warranted to keep any number of years. Price, in England, one dollar per pound. A friend, however, whom curiosity led to import a small quantity, has tried it and assures us that it is all that it claims to be—"a real blessing to mothers" and mariners.—*Home Journal*.

HORTICULTURE.

[Gardening being intimately related to farming—both being in fact dependent on common principles—we shall continue to devote a brief space of our journal, as circumstances will allow, to the elucidation of this most interesting and useful art. It is now quite time that more attention should be paid in all the older settled districts of this country to the principles and practice of Horticulture, which is an art most admirably adapted to improve rural taste and promote domestic enjoyment. A well kept garden, accompanied by a little ornamental planting and a well laid out orchard, gives an air of neatness and comfort to a human dwelling place, and adds to the picturesque appearance of a country, in a degree which it is difficult to over estimate. We hope to be favored before the opening of spring commences with some practical directions for managing a Kitchen Garden, and the common sorts of fruits and flowers, adapted to the climate of this country, by correspondents well acquainted with their subjects. In the meanwhile we commence a series of papers on the science and principles of gardening, copied and condensed, in a great measure, from a little English publication of very great merit, from the able pen of Mr. Kemp, entitled, "The Hand Book of Gardening," tenth edition: and we ask the attention of our *agricultural* readers to the principles that will be communicated.]

THE SCIENCE AND PRINCIPLES OF GARDENING.

NO. I.

Gardening, like Farming, may be treated either as an art or a science; and, as in case of most of the useful arts, the former has hitherto been much in advance of the latter.

The art of Gardening consists in the employment of all those means necessary to rear, develop, nurture, and gather in the various crops, whether of herbs, fruits, or flowers.

The Science of Gardening is founded on a knowledge of the nature, constitution, habits, and wants of plants, and on the way in which the agents and processes of Nature affect them. It should, therefore, teach the general applications of the facts thus known to all the operations of culture.

An individual who has no acquaintance with the Science of Gardening, conducts its numerous processes very much in the dark, and is successful or otherwise, chiefly as accident may determine. He sows, plants, and labours, as his forefathers have done before him; and the simplest derangement of the circumstances which have previously caused him success will disappoint and frustrate all his expectations.

The mere book-gardener, on the other hand, who is conversant only with theories, finds himself continually still more at a loss, and liable to perpetual failure; for the commonest results of every-day experience being unknown and neglected by him, nothing that he attempts can prosper. Hence, the teachings of science, and the precepts of experience, are alike necessary to enable any one to garden satisfactorily, and to correct his practice according to the varying conditions of soil, climate and numberless modifying circumstances.

THE ORGANS AND PARTS OF PLANTS.

These are necessary to be understood in order to cultivate and propagate plants successfully. As with the animal system, every vegetable is furnished with certain parts or organs which are essential to its health, its preservation, or its very existence. An organ is a part of a plant which occupies a certain position and fulfils certain offices in its economy, and to which a particular and distinguishing name is applied. Stems, leaves, roots, flowers, are such organs; and some of the subordinate parts by which special and peculiar offices are performed. The spougelets or tips of the roots—the pores situated on most portions of the external surface—the sap, which is like the blood of the plant—and the alburnum, which is the incipient layer deposited yearly beneath the bark of woody plants, to increase their bulk—are examples of such parts.

I.—LEAVES.

These, as is well known, are the upper appendages of plants, which give them nearly all their beauty, and are the means by which they expand and become strong. They are the instruments of elaborating all food, and give off its watery parts. It is in them that the processes analogous to digestion and assimilation in animals are carried on. Through the action upon them, they separate the nutritious from the watery portions of the sap, and discharge the latter into the air, while they restore the former into the branches and stems. When, therefore, by birds, or insects, or disease, or the browsing of cattle, a plant is stripped of its leaves, it will either become weak and sickly or altogether die. And the more abundant and healthy the foliage of a plant may be, the more vigorous and luxuriant will be its general growth. To pluck leaves from plants with the view of aiding fruit or wood to ripen, or at all to anticipate their falling off in the Autumn, is a great error; for it is through the leaves alone that both wood and fruit are enabled to reach maturity.

It must not be supposed, however, that encouragement should be offered to the growth of leaves in all cases. A fruit tree or a flowering plant may sometimes settle into a thoroughly unprolific state in consequence of undue luxuriance in leaves and wood. The correction will then be found, not in reducing the number of leaves by thinning them, but by pruning the branches, or descending to the source of the evil, and impoverishing or pruning the roots. This is merely mentioned to show that although leaves are most necessary, and their action beneficial, they may in particu-

lar instances, become too numerous, and thus do mischief. There is a kind of balance preserved by Nature in plants, between the leaves and the roots; so that where the one is particularly strong or feeble, the others will be sympathetically strong or feeble also. Whatever tends to increase diminish the one will therefore similarly affect the others. Roots may be very vigorous, and require pruning, as already suggested, because they occasion the production of too much wood and foliage. And because, from removal or other causes, roots may sometimes be curtailed or mutilated, the branches should in such cases be slightly pruned, to restore the balance between roots and leaves.

SCIENTIFIC.

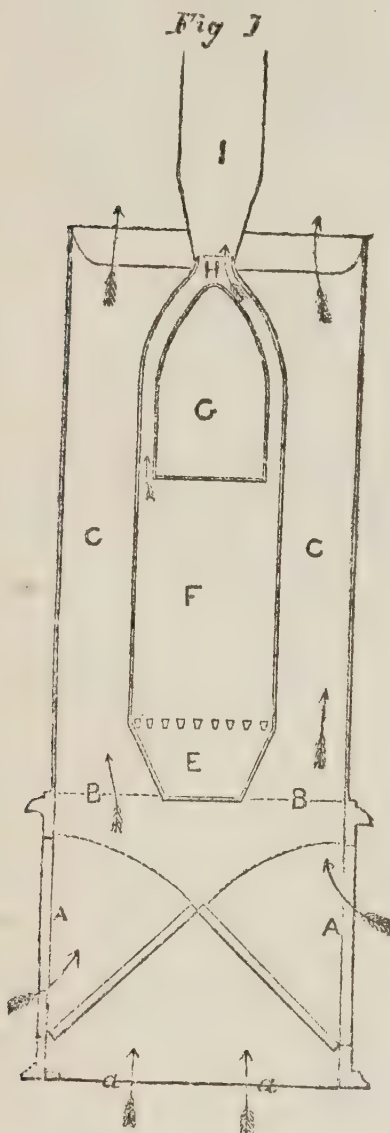
RUTTAN'S PATENT VENTILATING STOVE.

The subject of warming and ventilating houses, churches, schools, &c., is indisputably one of vital importance to the health and comfort of mankind; and he who brings into practical operation a cheap and efficient system of accomplishing these two objects, cannot be otherwise regarded than as a benefactor of his race. The advantages of thorough ventilation in all buildings in which human beings live or congregate, and of other sanitary regulations so peculiarly needful in crowded cities, are now happily being discussed with an earnestness and practical application, that cannot fail to promote in a high degree, the comfort and longevity of man. In a climate like that of a large portion of North America, the value of a system for securing warmth and ventilation, in an economical manner, can scarcely be over estimated. Our winters are long, and always more or less severe; firewood is every day becoming scarcer, and consequently dearer, as population increases; the wasteful system of burning fuel in large open fire places, involves an expense in thickly settled districts which can no longer be borne; and much domestic discomfort, and no small amount of enfeebled health are the inevitable results of our often ill-contrived and badly constructed dwellings. Till recently, very little attention has been bestowed on this subject by persons the best qualified to effect a reformation; and in this country we fear that the great mass of the people are ignorant of, and consequently indifferent about, the matter.

Mr. Ruttan, who is known to have devoted much attention to this subject, has favored us with a set of wood-cuts illustrative of his ventilating stove, which is now a patented article, both in Canada and the United States. We have personally no knowledge of its practical operation, but we observe several American papers speak well of it, and we have heard the same from individuals in this country. Our readers will be able to form an idea for themselves, after inspecting the accompanying illustrations.*

* The few inaccuracies in a portion of Mr. Ruttan's former communication to us on ventilation, pointed out by our gaseous correspondent on a subsequent page, by no means diminish the importance of the

Fig. 1 is a vertical cross section. Fig 2 is a prospective view. Fig. 3 is a vertical longitudinal section. Fig. 4 is a horizontal section. Fig. 5 is a wooden or iron pedestal. Fig. 6 is a bottom plate. Figures 7 and 8 show the manner in which the ventilating air is drawn under the floors.

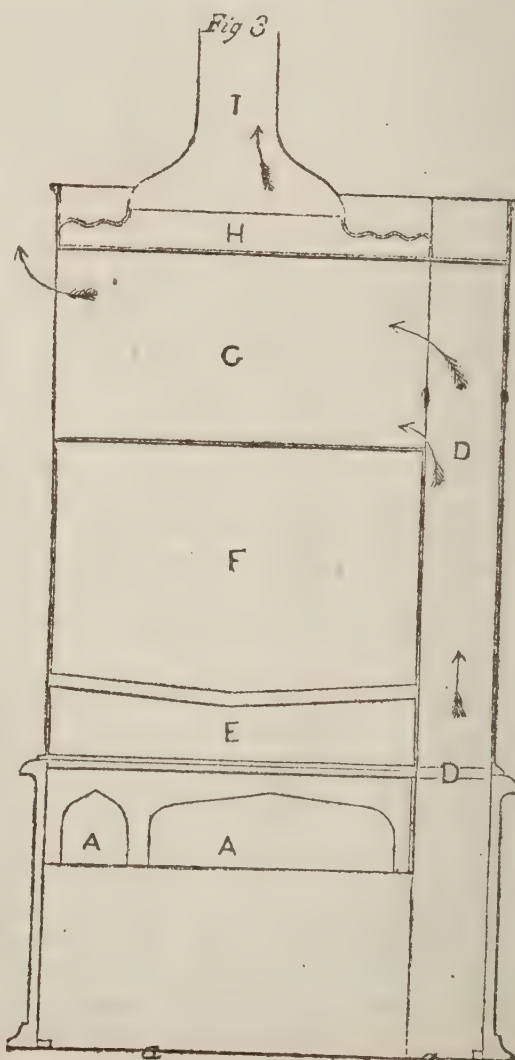
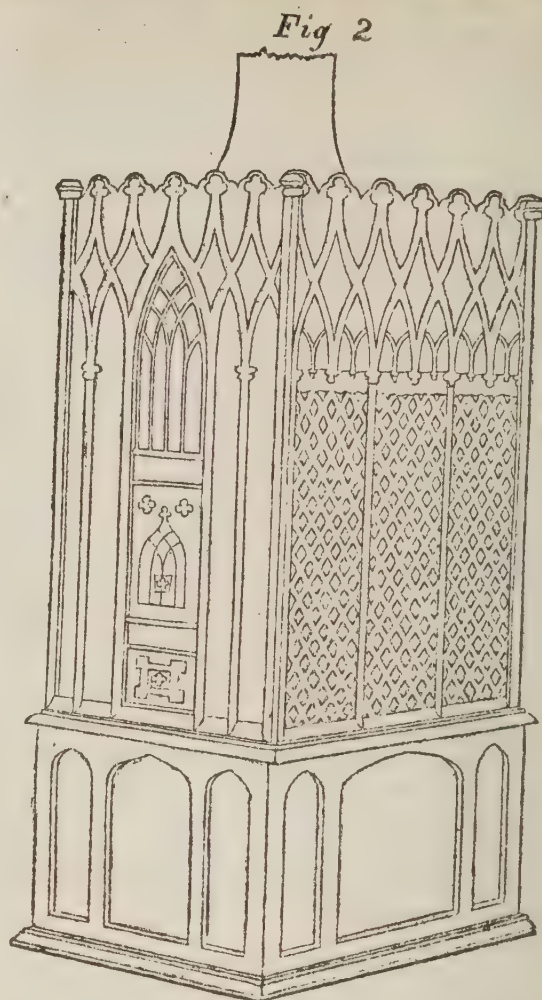


A A are apertures to admit air from rooms. a a are apertures to admit air from outside. B B are apertures in the bottom plate. C C are apertures on each side of the stove. D are apertures to admit cold air from outside for oven. E is an ash pit. F is a fire chamber. G is an oven. H is a fire flue round the oven. I is a smoke pipe. K is the skirting or base. L are foul air apertures in skirting. M the floor of room. N are joists. O a space between joists. P are two inch slats, or furring nailed across joists, to lath to. Q lath and plastering. R a space between plastering and bottom of joists, for circulation of air across the joists.

The *Scientific American* in a recent favorable notice of Mr. Ruttan's patent, observes:

"This machine is not necessarily connected

with ventilation: any process by which the ventilating air may be warmed, not heated, will be



subject; nor affect, as we can see in the least, the efficiency of Mr. Ruttan's apparatus. We will cheerfully give "Mr. Carbonic Acid" and the inventor a reasonable portion of our space—if they should require it—for an amicable discussion of a subject so pregnant with importance to all that breathe.—EDITOR.

just as effectual, but Mr. Ruttan has invented this stove for supplying a deficiency—the hot-air machines in use being too cumbrous and expensive for small dwellings, school houses, offices, even if the air proceeding from their hot-air chambers

was not injured by heat. Mr. Ruttan's principle, with regard to the ventilating air appears to be quantity of air not heat. He barely warms the air, and makes up by quantity of air what has hitherto been accomplished by quantity of heat;

Fig 4

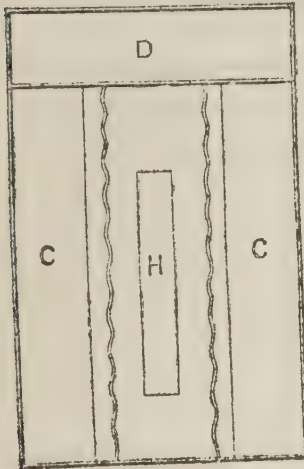
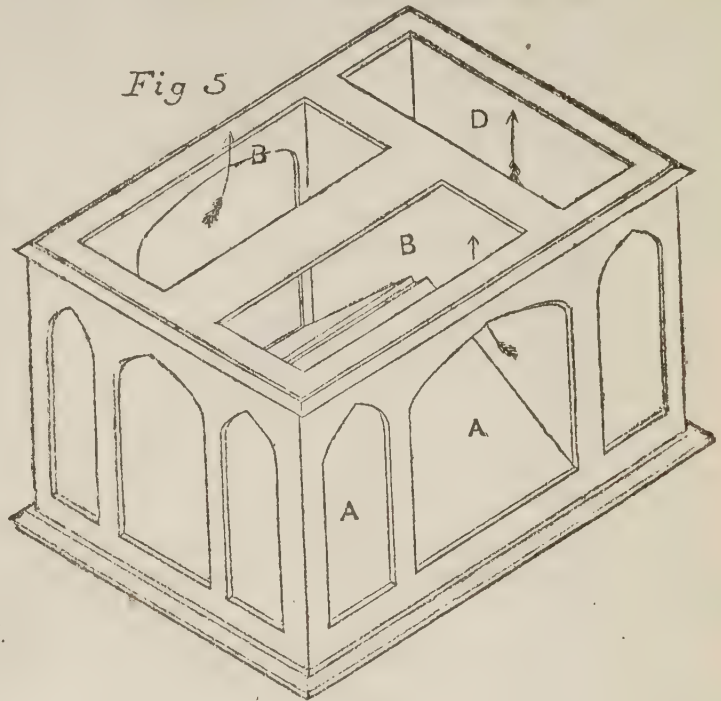


Fig 5



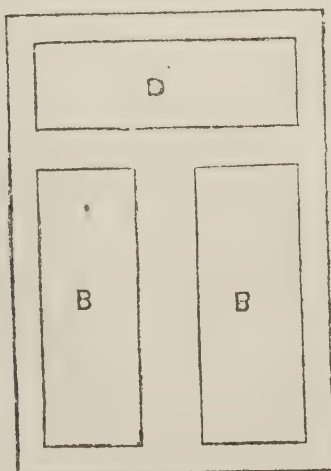
and in order to cause this extra quantity of air to flow through the house (for this, upon his plan, appears to be the desideratum,) he very much enlarges the chimney flues, and increases the number, so as to exhaust the building to the extent required.

Now, if it be a fact, what Mr. Ruttan asserts, that air will flow through a building so constructed, as to take in the atmosphere at a lower point than that at which it is taken out, under all circumstances and with a rapidity in a ratio equal to the difference between these two points, then we think he has accomplished what he professes to have done, and the importance of this principle to the ventilation of dwellings is beyond dispute.

Mr. Ruttan's is the downward principle of ventilation, and he says the building may be filled

settles and falls down under the floor, and is thence carried out through the chimnies or "foul air shafts," as he calls them. The *modus operandi* of constructing the first floor of the house, will be comprehended by a view of figs, 7 and 8 where it will be observed the foul air is drawn under the floor, to the boards of which it imparts the residue of the warmth, and then passes out

Fig 6



with warmed air, which, after it has done its work in warming and carrying off the miasm, all

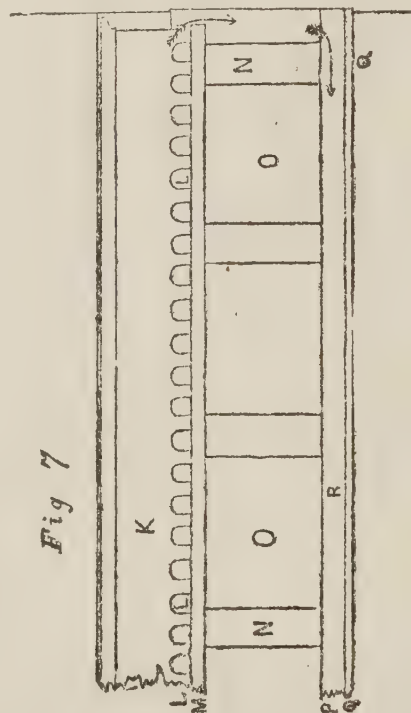


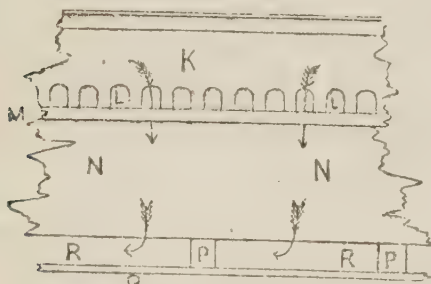
Fig 7

between the joists and the ceiling of the cellar or basement, into and up the flues.

We will not commit ourselves by expressing an opinion upon the practical operation, but we do think there ought to be sufficient enterprize and public spirit in some of our architects to give the system a trial; if found to work, and our archi-

fects could, with confidence, assure proprietors of new houses that their dwellings would be thoroughly ventilated and warmed when completed, and save them the trouble, vexation, and annoyance of a second operation to make them habitable; they might depend upon an ample reward in the business it would bring them. Mr. Ruttan has given this subject long and serious attention, and by study and experiment upon experiment, the result is here presented to our readers. It is now the subject of a patent for the United States

Fig 8



—having cost the inventor \$500 for the simple fee, showing no small amount of confidence in its merits.

This ventilating stove is intended to be put in the hall of any house already built, for the purpose of supplying it with ventilating and warmed air, but it will be most effectual the greater the number of fire places that are contained in the smallest house. Where there is flue room to the extent of four feet it will throw 500 cubic feet of air per minute through the house, which is enough for 50 persons, allowing 10 cubic feet to each."

As we have now in Canada a number of architects of scientific skill and ability, it is most desirable that they should give to the patent ventilating stove the principles which have been but imperfectly described above, a full and fair consideration. And we earnestly urge the same on all our readers who intend to build. A dwelling constructed upon scientific principles evolved by science and experience, is commonly in the first place, a saving of expense, and promotes health and domestic comfort to a degree that can only be understood by their actual realization. Mr. Ruttan, as a native of Canada, must from what we know of his inquiring and observant habits of mind, be intimately acquainted with the peculiarities of our climate, and the domestic state and wants of the people; and, who would, we are sure, give any information in his power on this subject to parties interested, by addressing him at Cobourg.

THE ICE CROP AND ICE HOUSES.

The ice crop is getting to be one of great importance, and the early commencement of winter furnishes the prospect that the harvest of this crop may be abundant very soon. It used to be thought that ice in summer was a luxury which the rich only could enjoy, as they alone were able to build costly houses to keep it in.

Experience, however, has proved this a fallacy, and that the poorest man can have a full supply of this cooling article in the heat of haying, as well as the rich man.

The crop itself, in this latitude, forms as clear and as crystal for the poor man as for the rich—it being no respecter of persons—and offers itself as a common harvest to every man who pleases to gather it.

Again, it requires no very costly expensive or elegant house to keep it in. A room in a shed or a cellar, or in a barn or in a rude building on the ground, covered with rough boards, with a lining five or six inches filled with sawdust, tan, or turning shavings, make the best magazines for the preservation of this article. These will cost but a little, and will, when filled, afford good ice during the warm season.—*Maine Farmer.*

CARBONIC ACID IN HIS OWN DEFENCE.

For the Canadian Agriculturist.

Mr. Editor,—As this is the first time that I have ever had the honour of addressing you, and as it is of course desirable that you should be made acquainted with the name of your correspondent, before consenting, as I hope you will, to insert the following vindication of his character in your most valuable journal, I take the liberty of hereby introducing myself:

Mr. Carbonic Acid, C.O.O.,

Grotto del Cane,

Naples.

My reputation, Mr. Editor, in the eyes of yourself and most other well-informed Agriculturists, is, I may venture to say, by no means a bad one, being justly regarded as of very great value in promoting the health and growth of all plants and vegetables whatsoever, in which important duty I am always materially assisted by my esteemed relatives—Ammonia, Lime, Phosphorus, and others.

High as I may stand in the estimation of Agriculturists, however, it does appear that I am not equally favoured by one of your talented correspondents, who, to judge from his late communication on Ventilation, must consider me as a malignant demon or evil spirit, constantly striving to insinuate myself into places where I have no business, tumbling in through windows, hiding myself in corners and other lurking places, and whose presence, or even approach, is to be considered as the precursor of disease and death.

My innate love of truth, compels me candidly to confess that *too much* of me is not beneficial either to man or beast; and that, when I become strong, I am decidedly poisonous; but when we consider the immense quantities of me that are swallowed in the form of champagne at night, and medicinally as soda water in the morning, as well as the large amount disposed of by the advocates of temperance in the shape of ginger beer, I do not believe either that my poisonous properties can be so very extraordinary, or that I can possibly be so tremendous a bug-bear as

would appear from the article on Ventilation, contained in your last number.

In order to remove from the minds of your readers so unfavourable an impression, I shall now proceed to correct a few of your correspondent's errors with regard to my properties and places of residence, and should you, Mr. Editor, be in any doubt as to the correctness of my statements with respect to these points (on which you must allow I ought to be pretty well informed), I would beg to refer you to any respectable work on Chemistry, for confirmation of my assertions. In so doing, I will speak of myself in the third person, for the sake of convenience.

The paragraph in Mr. Ruttan's communication, to which I would more particularly direct attention, is as follows:—"A few, fancying themselves a good deal wiser than their neighbours, do bring a few square inches of the external air, taken from the surface of the ground, to their hot-air stove. This practice is little better than the other, for here they get pure carbonic acid—especially at night and during calm weather. Providence has ordered that this portion of the atmosphere should be heavier than any of the others, in order that vegetation may have the full benefit of that which is its very life; and the fact is notorious with scientific men, that so near the density of water does this become that it can, at times, be poured out of a tumbler. And this is the material with which many respectable and intelligent men fill their dwellings!!! So that, besides this miasma engendered in your cellars, generated by the decomposition of all these edibles, they are the receptacles of constant streams of carbonic acid pouring in at the windows."

1. The statement of carbonic acid being nearly as dense or heavy as water, seems to be a rather powerful exaggeration, as the following numbers will show. 100 cubic inches of carbonic acid weigh 47.3 grains; say, in round numbers, 48 grains; 100 cubic inches of water weigh 25,250 grains: water is, therefore, five hundred and twenty-five times heavier than carbonic acid. If Mr. Ruttan's statement were correct, it would be well to inquire whether the persons who had filled their houses in this manner, were in the custom of entering their rooms on stilts, or whether they provided themselves with swimming jackets, as they must have done if their houses were filled with a substance nearly as heavy as water.

2. "On the surface of the ground, we have pure carbonic acid, especially at night, and during calm weather." The following numbers will show the incorrectness of this statement. 10,000 parts of air contain as a maximum $6\frac{2}{10}$, as a minimum $3\frac{7}{10}$, and in general about $4\frac{15}{100}$ of

carbonic acid. This quantity is increased at night by about $\frac{34}{100}$ ths. The quantity is increased during stormy weather (not diminished) by about $\frac{22}{100}$ owing to there being a slightly larger quantity of carbonic acid in the upper regions of the atmosphere, and about high mountains, which is brought down by the winds. This increase of carbonic acid is, however, exceedingly small and scarcely perceptible.

So far, then, from the air at the surface of the ground being pure carbonic acid, it only contains five tentousandths, or seven at the most; the incorrectness of the statement is self-evident, for, if it were true, how could all the rats, mice, moles, and other smaller animals contrive to exist? Air which contains only nine per cent. of carbonic acid, causes suffocation, for then both the inspired and the expired air contain about equal quantities.

3. But a still more serious error runs through the whole of Mr. Ruttan's statements with regard to the manner in which carbonic acid accumulates and remains on the surface of the earth, in wells, mines, caverns, and between the joists of buildings.

"Providence has ordered that this portion of the atmosphere should be heavier than either of the others, in order that vegetation may have the full benefit of that which is its very life." Are we to understand from this that the carbonic acid being heavier sinks down through the air and collects on the earth? The sentence will scarcely bear any other interpretation; but it is certain that if Providence had been pleased to arrange matters in this manner, the present discussion would never have occurred, inasmuch as there would have been a stratum of carbonic acid over the earth's surface sufficient to suffocate the whole of us. Fortunately for us, there is a provision of Providence, an all-wise, an all-admirable one, which totally prevents any such accumulation.

Mr. Ruttan seems never to have heard of the *Law of the Diffusion of Gases*, a law of the very greatest importance in the economy of Nature, which may be briefly expressed as follows: "Two or more gases, however different, when brought into contact rapidly mingle together until a perfectly uniform mixture is produced." The diffusibility of the gas overcomes the force of gravity; the lighter descends, the heavier ascends, until complete uniformity is obtained. Mr. Ruttan's arguments seem based on the supposition that no such law exists. The diffusing or mixing takes place through the smallest apertures. Let Mr. Ruttan fill a bottle with carbonic acid, or any other gas, deleterious or otherwise, and close it all but one pin-hole; or let there be attached to the mouth of the bottle a twisted narrow tube fifty feet long:—in

the course of a few days, or even hours, the air in the bottle will be found to be just as pure and exactly the same as the rest of the air of the apartment in which the experiment is made.

How is it that many localities, lying in sheltered positions, surrounded by mountains, and in which thousands and tens of thousands of pounds of carbonic acid are being annually given out from the earth, for instance, at Carlsbad and the Rhine Provinces; how happens it that these places are perfectly healthy; how comes it that the gigantic breweries of London are not perfect charnel houses from the enormous volumes of carbonic acid exhaled from the fermenting vats? simply because there is such a law as the diffusion of gases.

But it will be said that carbonic acid in injurious quantity is often found in wells, caverns, sewers, &c., &c. The fact is perfectly true, but the reason of the gas being always found there is, that it is being constantly exhaled from the bottom, either from the water of the wells or from a decomposition of the filth of the sewers. Stop up the sources from which the gas is being continually exhaled and diffused through the atmosphere, and the Grotto del Cane, or the Valley of Death, would in a very short period of time become as healthy as Yonge Street.

Mr. Ruttan states that the deleterious gas accumulates to such an extent between the joists and floorings as to extinguish a candle, and yet in a previous paragraph he maintains that it passes with the greatest ease through floors and ceilings; the one statement is in contradiction to the other.

It is scarcely necessary to state that the assumption of cholera, consumption, scrofula and elephantiasis being caused by exposure to carbonic acid alone, is as unfounded in fact as are many of the statements to which I have alluded.

Thus far, Mr. Editor, I have pointed out a few of the errors into which your correspondent has inadvertently fallen; my present object has been solely to remove any erroneous impressions which might exist in the minds of some persons as to the danger they were incurring from carbonic acid, at the same time to assist in a small degree in that most important object of periodical literature,—the promulgation of correct knowledge.

I should be extremely sorry if it should be thought that I desired in the slightest degree to invalidate the efforts of your talented correspondent towards effecting a reform as regards ventilation, which is a subject of the greatest interest affecting as it does the health and lives of so many millions of our fellow creatures, and sufficient praise cannot be given to Mr. Ruttan for the zeal and energy with which he has devoted himself to so important a study.

In conclusion let me offer my readers a piece of advice:—Kick out your stoves, unless perhaps in the hall, where from the more constant draughts they can do little or no injury; use open fire-places or coal grates, and if you wish to make assurance doubly sure, fix an American ventilator into the flue just below the ceiling; stuff up your windows if you will, but not your doors; allow a free current of air into the room, either by Mr. Ruttan's process, or by the natural one, and having done this you may safely rely on it that you have nothing to fear from,

Mr. Editor,

Your most obedient Servant,

CARBONIC ACID.

December, 1851.

THE GEOLOGICAL SURVEY.

For the Canadian Agriculturist.

SIR:—With the view of furthering the objects contemplated by the Geological Survey, connected with Agriculture, I communicated a few facts and practical observations in the *Globe* of March 11th last, with reference to the *Gypsum* and *Coal Formations*; especially referring to the former as immediately connected with the prosperity of Canadian Farming, and to the latter as exhibiting similarities in mining characters, Dip, Position, &c., with some of the great mineral masses in Europe and elsewhere. It was expected that the observations and suggestions alluded to, respectfully made and brought under notice, would have drawn the attention of persons officially employed; but as this usage has not been complied with, I take the liberty of offering a few further remarks on the same subject, and pointing out some important defects in the published proceedings. In the Reports, 1844, we have a brief and imperfect examination of the important Gypsum Formation on the Grand River; on the development of these and similar mines of the mineral depend results far more weighty to Canada, than the Copper regions of Lake Superior. Since the Reports alluded to, four or five mines have been explored, not one of which was indicated in the Report, but several of them were subsequently pointed out by practical men, by their relative Geological position to old workings, and other mining characters. Another important omission is the absence of any notice of the peculiar cretaceous nature and Chemical combination,—a Carbonate as well as Sulphate of Lime, of extraordinary Specific gravity.* The interesting and valua-

* This fact was explained in a former communication, when preparing a quantity of Gypsum sent from Paris in C.W., to the Royal Agricultural Society, the Carbonic Acid Gas liberated in grinding put out the candles in the mill.

ble fact of the peculiar fertilizing agency of this Gypsum (especially to be found in some mines near Paris.) will be better understood by those who have examined the effect of Irrigation from water impregnated with Carbonic Acid Gas, derived from the Calcareous Strata or Cretaceous Rocks in which the Springs originated; a fact noticed by a writer whom Sir Charles Lyell styles the Father of British Geology; Mr. William Smith, the author of the first Geological map of England. (See his Treatise on water Meadows, written when constructing those of the Duke of Bedford, at Woburn, which are particularly described.) The dark slate color of the best Gypsum is also derived from the Carbon, this is evident in preparing the two varieties for cement or moulding, while the white pure Gypsum parts with the water of crystalization only, the dark slate color gives out a volume of smoke with strong smell of Carbonic Acid Gas; and both specimens become equally pure white by the process, and about equal in Specific Gravity.

Another general defect in the Reports is the absence of any glossary, the numerous scientific terms constantly recurring which are not to be found in any of the ordinary Dictionaries, must render the information intended to be conveyed entirely unintelligible to the great majority of readers, but few of whom have the means of referring to Lyell's or other standard works in which glossaries are to be found.

It was also expected to find occasional notices of rich veins of marl or soft Cretaceous sand,—substances of great value to the Agriculturist in particular sections, but the only notice to encourage us Farmers is, “that Gypsum *will be found* between the Saugeen and the present workings on the Grand River,” a distance not far short of one hundred miles! It was recommended that the Geological Survey should supply materials for a Geological Map, as in England, but I do not find any allusion in the Reports indicative of that object, which is much to be regretted.

I have now to state a few remarks on the expected development of Coal in Western Canada, to which allusion was made in a former communication. It was my intention to have made a personal inspection of the Ohio and Michigan Coal fields last Summer, but a poor state of health alone prevented; it is, however, intended in the ensuing Spring, and I confidently expect to find Geological Criteria, in associated mineral masses, mining characters and other facts hereafter to be explained, to warrant the conclusion that both belong to the same formation, and also supply indications for research in the intermediate space in Canada.

I have only to add a suggestion for developing our mineral resources with much more practical benefit and public satisfaction, than can be de-

rived from the present Survey; which is too much calculated to mystify a useful science. Let suitable medals or honors be offered for the best Essays on various subjects on which information is desired; this would lead many intelligent minds to enquiry, and the speedy acquisition of all the facts and local knowledge acquired by our neighbors, and might also serve as a nucleus for a scientific association of our own people, which is much to be desired, and would also impart a practical character to our Mechanics' Institutions.

I am, Sir,

Your obt. servt.

HENRY MOYLE.

Sheep Walk, near Brantford, Dec. 15, 1851.

[We agree with our Correspondent as to the desirableness of the Geological Reports being written in a style as easily to be comprehended by general readers as possible; but we despair of ever seeing purely scientific subjects so treated as to be understood by those who do not care to learn the meaning of scientific terms, which are in most instances, peculiarly concise and significant. The geological and mineralogical Survey of so new and extensive a country as United Canada is indeed a herculean task, and to be done thoroughly, it will require much time and labor. Haste, in such matters, is seldom real progress. The practical application and money value of these researches to our agriculture, mining, and other industrial pursuits are only just beginning to be seen. Sure we are that the work could not be in better hands. Mr. Logan's acknowledged scientific and practical skill, guided by observing and descriptive habits of the greatest accuracy;—qualities, we believe, also possessed in a distinguished degree, by his coadjutors, Messrs. Hunt and Murray, cannot fail to secure public confidence in the truth and accuracy of the Geological Survey; on which our respected correspondent, would, we are sure, be the last to insinuate even a doubt. We would like to see, as early as practicable, the materials in the hands of the Provincial Geologist, worked up into a convenient volume,—popular in its character, yet strictly correct in its science; accompanied with an outline geological map, and practical hints and instructions to miners, agriculturists, &c. Whether the Survey has yet extended far enough to warrant the attempt, we know not; but nothing ought, in our opinion, to be left undone towards facilitating so interesting and useful an object. We would further suggest the

desirableness of forming in each of our principal cities—such as Quebec, Montreal, and Toronto, as complete a cabinet or museum of the minerals and fossils of the country, scientifically arranged, and *popularly described*, as the extent of present knowledge and research will admit; such museums would likewise gradually accumulate specimens from abroad, and in time might enlarge their boundaries, so as to embrace most or all of the departments of the wide and interesting field of Natural History generally. While thus exhibiting the natural products and curiosities of the country, these Institutions might easily be made the exponents of our industrial and social progress in agriculture, manufactures, and the useful and ornamental arts. Such a scheme, we think, would rank among the best means for improving the taste and educating the minds of the people, and of affording them, as well as strangers that visit us, just conceptions of the resources of this young and extensive country. Such a scheme is, in our estimation, well worthy of public and private support.]—EDITOR.

NEW BRICK MACHINE.

On Thursday of last we visited the Steam Brick Works of Tufts and Boyden, in Somerville, to witness the operation of a machine for making bricks from dry clay, invented and patented by Woodworth and Mower of Boston. This machine is of iron, simple, compact and massive, weighing seventeen tons, and was made by Lyman Kingsley, Esq., at his extensive works at Canton, Mass., and is a good sample of the substantial and perfect work for which Mr. Kingsley's establishment is justly celebrated. It works with great steadiness and precision, and turns out three thousand bricks per hour. The machine and the clay pulverizer are operated by a steam engine of twenty horse power. The clay is first dried, then ground, by passing between heavy rollers, then screened or sifted and passed into the machine in a uniform state, where it is subjected to the immense power of the machine, and a beautiful perfect face brick is produced, almost as smooth and dense as polished marble. The bricks are taken from the machine and immediately set in the kiln ready for burning, thereby obviating the necessity of spreading on the yard to dry before burning, as well as injury or loss from wet weather. By this process, a superior face brick can be produced at less expense than the coarsest common brick by the old method.

This machine is the result of three years' close application and hard study on the part of the patentees, Messrs. Woodworth and Mower, and may justly be considered one of the most valuable and important inventions that have been made. No one can witness its operations, and compare it with the old fashioned way of brick-making, without being filled with surprise and admiration.—*Boston Journal*.

WIRE-WORK FOR CEILINGS.—Some two years back you were the first to usher forth the application of wire work for ceilings in lieu of lath. Since that time but little has been done in it here in England, but the statement has been copied from your paper through all nations, and translated into all languages, and

the material is now being universally adopted. The objection to it here was its expense, but that ought to weigh but as a feather in the scale as compared with the security of life and property. I can say that the ceilings already finished are perfect, without even a crack in them; unlike the wood, there is neither contraction, expansion, nor absorption. Nor have we been idle in testing it in every way: it has been subjected to the severest trial by flame, without producing even the smallest effect of ignition: in case of fire in one apartment, to that alone it is confined. What is there that is so inflammable as the dry lath?—the ceiling falls, the lath is lighted, and destruction is inevitable. The cost has been reduced, viz. plain wire-work to two pence per square foot, and galvanized, to two pence three farthings per square foot.—*Builder*.

CHATSWORTH AND PAXTON.—On my way home, I passed three days at Chatsworth, where were the Fitzwilliams, and a very agreeable party. The principal object of admiration in that magnificent establishment is the conservatory, covering more than three quarters of an acre, built and laid out with the greatest taste and judgment. The whole is the work of Paxton, planned by his own genius and courage, contrary to the opinion of the eminent architects consulted, but now allowed by them to have been most successfully executed. Paxton is, probably the ablest gardiner in Europe, and has raised himself to eminence by native genius, unceasing activity and unblemished character. This is much to say of a man yet alive, but I do not expect to have ever to retract it. It is at Chatsworth alone the Duke of Devonshire's character can be fully appreciated. There, are seen and felt his generous hospitality, his unaffected friendly attentions, and a benevolence extending to every class, which I have never known surpassed.—*Notes by Sir Robert Heron*.

LAND FORMATIONS IN THE HIGHER REGION OF NORTH AMERICA.—The eastern coast-line of Lake Winnipeg is in general swampy, with granite knolls rising through the soil, but not to such a height as to render the scenery hilly. The pine forest skirts the shore at the distance of two or three miles, covering gently rising lands; and the breadth of continuous lake surface seems to be in process of diminution, in the following way:—A bank of sand is first drifted up, in the line of a chain of rocks which may happen to lie across the mouth of an inlet or bay. Carices, balsam poplars, and willows speedily take root therein; and the basin which lies behind, cut off from the parent lake, is gradually converted into a marsh by the luxuriant growth of aquatic plants. The sweet gale next appears on its borders, and drift-wood, much of it rotten and comminuted, is thrown up on the exterior bank, together with some roots and stems of larger trees. The first spring storms covers these with sand, and in a few weeks the vigorous vegetation of a short but active summer binds the whole together by a network of the roots of bents and willows. Quantities of drift-sand pass before the high winds into the swamp behind, and, weighing down the flags and willow branches, prepare a fit soil for succeeding crops. During the winter of this climate, all remains fixed as the summer left it; and as the next season is far advanced before the bank thaws, little of it washes back into the water, but, on the contrary, every gale blowing from the lake brings a fresh supply of sand from the shoals which are continually forming along the shore. The floods raised by melting snows cut narrow channels through the frozen beach, by which the ponds behind are drained of their superfluous waters.

As the soil gradually acquires depth, the balsam-poplars and aspens overpower the willows; which, however, continue to form a line of demarcation between the lake and the encroaching forest. Considerable sheets of water are also cut off on the north-west side of the lake where the bird's eye limestone forms the whole of the coast. Very recently this corner was deeply indented by narrow branching bays, whose outer points were limestone cliffs. Under the action of frost, the thin horizontal beds of this stone split up, crevices are formed perpendicularly, large blocks are detached, and the cliff is rapidly overthrown, soon becoming masked by its own ruins. In a season or two the slabs break into small fragments, which are tossed up by the waves across the neck of the bay into the form of narrow, ridgelike beaches, from twenty to thirty feet high. Mud and vegetable matter gradually fill up the pieces of water thus secluded; a willow swamp is formed; and when the ground is somewhat consolidated, the willows are replaced by a grove of aspens.—*Sir John Richardson.*

HOW TO BURN COAL.—The art of burning coal is not properly understood as it ought to be. Too much coal is usually placed in the stove, by which the draught is destroyed and the gases are imperfectly consumed. The *Miners' Journal* of Pottsville says there are two errors in the way we burn coal, by which more than one half is wasted. 1st. We have to shut the door of our stove or furnace, to make a temporary over-combustion at one time, and at another time we have to leave open the door and let in cold air to cool off. 2. The gas that ascends our chimneys carries off with it a deal of coal that is unburned, merely coal in vapour, which gives out little heat for want of air to consume it. We lose the most of the unconsumed vapour of coal when the door is shut. When it is open the vapour is consumed, but the heat is reduced by a flood of cold air, and carried up the chimney. What is required then is an air-tight door over the ash-pit, through which you can let in just what air is necessary for quick or slow combustion as desired. The door that admits the coal should be tight, and should never be opened except to put coal in. A small flue should admit a stream of air, heated by contact with the stove, to mix with the gas on top of the fire. In buying a stove, if you find that the stove or furnace door must be left open when you want to moderate your fire, reject it; for it is essentially wrong in its construction, and it will consume three tons of coal where one would answer if the draft door were air-tight.

MR. GALTON'S EXPEDITION IN SOUTHERN AFRICA.—Letters have been received from the enterprising traveller, Mr. Galton, who our readers will remember, started for the Great Lake, *via* Walwich Bay, in September last. Mr. Galton writes, under date 1st of March, from latitude 52° south, longitude 16° 49 east. Mr. Galton arrived in the Damara country in October. He reports constant fighting and wars of reprisals between the Damara and the Namaquas, which commenced four years ago, but had lately increased in ferocity and extent; Jouker Afrikaner being a principal mover. The destruction of the village of Demaras, gathered around Mr. Kolbe's mission station, reported in the papers at the time, and the purchase of plundered cattle by white men, and had led to difficulties in the way of Mr. Galton's progress, and to the prospects of commerce. Mr. Galton on his arrival in that country, wrote to Jouker Afrikaner, acquainting him with the instructions he had received from the governor to establish friendly relations with the native tribes on the route to lake N'gami, with a

view to prepare them for future commerce, and to warn them against any attempts to dispossess them of their country; and intimating the displeasure of the British Governor at the oppression of the other tribes by the Namaquas. Jouker's answer was delayed a month, and was unsatisfactory, and Mr. Galton then rode straight to him with an escort of only three followers, and succeeded in thoroughly alarming him. He made Jouker write a most ample acknowledgement of his wrong to Mr. Kolbe; and advised him to make the same acknowledgement to the British Governor, which he did, and sent it by a messenger forthwith to the colony. Mr. Galton also made Jouker send for a neighboring captain of the red people, and made him also solemnly undertake to leave off oppressing the Damaras, and wrote a few simple laws to meet cases of cattle stealing, which were cordially agreed to. One of these laws provided for the equal punishment of Namaquas with the Damaras for stealing. Some of their own disputes were also voluntarily referred to Mr. Galton as umpire. Mr. Galton received much valuable and interesting information respecting the transactions in that part of the country for some years past, from the diary of Mr. Mahn, the longest resident missionary among the Damaras. Mr. Galton, at the dates of his letters, was to start for the interior in two days, but intimates his intention of returning that way in about six months. A considerable impression has been made on the native minds by Mr. Galton's visit, and a way appears to be prepared for the progress of European commerce and civilization in that direction at no very distant period, but very much will depend on the conduct of those here, who hereafter attempt to open out further relations with the natives.—*Cape Town Paper.*

Unprecedented Ocean Steaming.

The steamship *Pacific*, Capt. Nye, Collins line, has made twenty-two passages across the Atlantic:—

Longest, 12 days 8 hours.

Shortest, 9 days 19 hours and 34 minutes.

—The latter, no doubt the shortest passage, mean or true time, ever made. The average of all her passages is under eleven days.

The steamers of the Collins line have done better this winter than ever before. Their passages lately have been astonishing. Crossing the Atlantic to the westward in the middle of winter in less than eleven days is wonderful. The company, however, find it a losing business. Their expenses are enormous, and the income from the government and passengers too small to prevent serious loss. If the government does not come forward and give this line substantial aid, it will be abandoned. The Emperor of Russia has signified a desire to purchase these magnificent steamships to form a nucleus for a powerful steam navy. Cannot something be done at once, to prevent these vessels from falling into the hands of a foreign government?—*N. Y. Herald.*

Mr. Hiram Powers is engaged on a large allegorical statue of California, typified by a beautiful Indian female. In her hand is a divining rod, with which she points to a mass of metallic quartz, like that recently exhibited in the east nave of the Crystal Palace. The voluptuous form, the laughing eye, and the gorgeous richness of her cap, armlets, and bracelets of native ore, are intended to suggest the fascinations of the land of gold; while a warning moral is hidden in her right hand which grasps a bunch of thorns, but so disposes them as to be unseen at the first hasty glance of the spectator.

MISCELLANY.

A WINTER LAY.

(TRANSLATED FROM KRUMMACHER.)

Ah! why reposest thou so pale,
So very still in thy white veil;
Those cherish'd Father-land?
Where are the joyous lays of Spring,
The varied hue of Summer's wing,
Thy glowing vestment bland?

But half-attired, thou slumberest now,
No flocks to seek thy pastures go,
O'er vales or mountains steep:
Silent is every warbler's lay,
No more the bee hums through the day,
Yet art thou fair in sleep!

On all thy trees, on every bough,
Thousands of crystals sparkle now,
Where'er our eyes alight;
Firm on the spotless robe we tread,
Which o'er thy beauteous form is spread,
With glittering hoar-frost bright.

Our Father kind who dwells above,
For thee this garment pure hath wove,
He watches over thee;
Therefore, in peace, thy slumber take,
Our Father will the weary wake,
New strength, new light to see.

Soon to the breath of Spring's soft sigh,
Delighted thou again wilt rise,
In wondrous life so fair.
I feel those sighs breathe o'er the plain,
Dear Nature, then rise up again
With flour-wreaths in thy hair.

EARLY RISING.

The winter season, in a Canadian climate, may not appear the most opportune, in which to recommend this desirable and most valuable habit. The resolution and imagined self denial involved in the formation of this habit, constitute some of the most useful and important elements of human character. Early rising is naturally conducive to health of body, clearness and strength of mind, and success in the various pursuits of life. To witness at all seasons of the revolving year that glorious diurnal phenomenon, the rising of the bright orb of day, not only affords us the full natural advantages of the day, either for study or business, but to the reflecting mind may help us to perform its duties, and manfully bear its burthens. We hear people constantly complaining of the shortness and uncertainty of life; and yet how few make the most and best use of the time that is mercifully allotted them! Young people would find it to their improvement and happiness to ponder well this matter. By forming the invaluable habit of early rising, they secure a larger amount of mental and physical enjoyment, and practically lengthen out the span of their probationary existence.

Dr. Doddridge, an English divine, highly distinguished for piety and learning, has the following remark in reference to this subject. "The

difference of daily rising two hours earlier, supposing the same time of going to rest be observed, and the practice maintained for forty years, adds six years to a man's waking life!—and states that his great work, "The Family Expositor," was the fruit of early rising. Well might he adopt the sentiment of his family motto, *Dum Vivimus Vivamus*—"While we live let us live," on which he composed the following lines, pronounced by Dr. Johnson "the finest Epigram in the English language:"—

" 'Live while you live,' the Epicure would say,
And seize the pleasures of the present day;
'Live while you live,' the sacred preacher cries,
And give to God each moment as it flies.
Lord, in my view let both united be!
I live in pleasure while I live to Thee."

THE CHARACTER OF A GOOD WIFE; BY SOPHOCLES,
B. C., 491.

Faithful—as the lone shepherd's trusty pride;
True—as the helm, the bark's protecting guide;
Firm—as the shaft that props the tow'ring dome;
Sweet—as to shipwreck'd seamen land and home;
Lovely—as a child, the parent's own delight;
Radiant—as morn that breaks a stormy night;
Grateful—as streams that in some deep recess
With crystal rills the parting traveller bless.

WONDERS OF THE UNIVERSE.—What mere assertion will make any one believe that in one second of time, in one beat of a pendulum, of a clock, a ray of light travels over 192,000 miles, and would therefore perform the tour of the world in about the same time that it requires to wink with our eyelids, and in much less than a swift runner occupies in taking a single stride? What mortal can be made to believe, without demonstration, that the sun is almost a million times larger than the earth, and that, although so remote from us, a cannon-ball shot directly towards it, and maintaining its full speed, would be twenty years in reaching it, yet it affects the earth by its attraction in an appreciable instant of time? Who would not ask for demonstration, when told that a gnat's wing, in its ordinary flight, beats many hundred times in a second; or that there exist animated and regularly-organized beings, many thousands of whose bodies laid close together would not extend an inch? But what are these to the astonishing truths which modern optical inquiries have disclosed, which teach us that every point of a medium through which a ray of light passes is affected with a succession of periodical movements, regularly recurring at equal intervals, no less than five hundred millions of millions of times in a single second? That it is by such movements communicated to the nerves of our eyes that we see; nay more, that it is the difference in the frequency of their recurrence which affects us with the sense of the diversity of colour. That, for instance, in acquiring the sensations of redness, our eyes are affected four hundred and eighty-two millions of millions of times; of yellowness, five hundred and forty-two millions of millions of times; and of violet, seven hundred and seven millions of millions of times per second. Do not such things sound more like the ravings of madmen than the sober conclusions of people in their waking senses? They are, nevertheless, conclusions to which any one may most certainly arrive, who will only be at the trouble of examining the chain of reasoning by which they have been obtained.—Sir John Herschell.

THE NEW YEAR.

WELCOME the glad New Year!
 With blessings on its fleecy wing,
 Only the wicked fear
 Thy advent, dawning year,
 And fly the judgments thou may'st bring.
 Welcome the glad New Year!
 Let every lowly heart aspire,
 To use thy moments well;
 And let thy progress tell
 Of hopeful souls still soaring higher.
 Welcome the glad New Year!
 May loving friends be spared to see,
 Many a glad new year
 Their welcome blessings bear,
 Leading to bright Eternity!

TRUE MORAL COURAGE.—Never be ashamed of thy birth, or thy parents, or thy trade, or thy present employment, for the meanness or poverty of any of them; and when there is an occasion to speak of them, such an occasion as would invite you to speak of any thing that pleases you, omit it not, but speak as readily and indifferently of thy meanness as of thy greatness. Primislaus, the first King of Bohemia, kept his country-shoes always by him, to remember from whence he was raised; and Agathacles, by the furniture of his table, confessed that, from a potter, he was raised to be the King of Sicily.

JEREMY TAYLOR.

THE SCOTTISH SHEPHERD.—The state of mind induced among the peasantry of the mountainous districts of Scotland by snow storm is thus pleasingly described by the Ettrick Shepherd:—"The daily feelings naturally impressed upon the Shepherd's mind, that all his comforts are so entirely in the hands of Him who rules the elements, contributes not a little to that firm spirit of devotion for which the Scottish Shepherd is so distinguished. I know of no scene so impressing as that of a family sequestered in a lone glen during the time of a winter storm; and where is the glen in the kingdom that wants such a habitation? There they are left to the protection of heaven; and they know and feel it. Throughout all the wild vicissitudes of nature, they have no hope of assistance from man, but expect to receive it from the Almighty alone. Before retiring to rest, the Shepherd uniformly goes out to examine the state of the weather, and make his report to the little dependent group within; nothing is to be seen but the conflict of the elements, nor heard but the raving of the storm. Then they all kneel around him while he commends them to the protection of heaven; and though their little hymn of praise can scarcely be heard even by themselves, as it mixes with the roar of the tempest, they never fail to rise from their devotions with their spirits cheered, and their confidence restored, and go to sleep with an exaltation of mind of which kings and conquerors have no share."

TOBACCO.—The total quantities of tobacco retained for home consumption, in 1842, amounted to near 17,000,000 pounds. Professor Schleiden gives a singular illustration of the quantity of tobacco consumed. North America alone produces annually upwards of 200,000,000 pounds of tobacco. The combustion of this mass of vegetable material would yield about 340,000,000 pounds of carbonic acid gas, so that the yearly produce

of carbonic acid gas from tobacco smoking alone cannot be estimated at less than 1,000,000,000 pounds—large contribution to the annual demand for this gas, made upon the atmosphere by the vegetation of the world.

A PICTURE.

Strolling through the Shockoe Hill Burying Ground, a few evenings since, says the Richmond Times, we unexpectedly became an eye witness to a scene that even angels might look down upon with an approving eye.—Within the railing of a neatly though plainly enclosed section, near the southern boundary of the burying ground, we discovered three sweet little girls—the eldest had probably seen ten, and the youngest not over six summers. The trio of little innocents had noiselessly gathered around a little green mound which appeared to be the newly made grave of an infant. The elder sister—for sisters we judged them to be—occupied an attitude of deep devotion, kneeling softly and gently by the side of a little green mound, which hid from view the loved form of a little sister or brother, who, "in the morn and liquid dew of youth," had been translated to a happier sphere. On either side, speechless and motionless, stood her little sisters, whose eyes, like her own, were running down with the meltings of their pure and innocent hearts.

Not an audible whisper escaped the lips of the little mourners. The orison of the kneeling child was in secret, but her whole manner bespoke the eloquent nature of the prayer she offered up to the throne of Heaven for the little one. That prayer, we doubt not, has been registered in Heaven; and if, in after life, its author should waver in the path of rectitude, it will plead trumpet-tongued in her behalf. Fearing that our presence might disturb the secret devotions of the sweet little trio, we paused, and quietly took a position which would enable us to watch, unobserved, the action of the devout little mourners. The elder sister held in her right hand a bunch of flowers—the earliest which a genial spring had called forth—consisting of violets and hyacinths. These she would press to her lips, and then scatter them over the grave of the little child. The sun was rapidly descending the western horizon—his last rays were gilding the tops of the obelisks which mark the repose of the opulent or the gifted, and the shades of evening were fast gathering around the holy scene. Softly and reverently the little sister arose from her kneeling posture, and as she arose we caught a glimpse of her sadly sweet face: it was illumined by an angelic radiance, which for a moment induced us to believe her more than mortal. Gently taking her sisters by the hand, the little trio of innocents softly left the enclosure, the eldest sister closing the gate with a degree of caution which seemed to indicate her great anxiety, not to disturb the slumbers of the little child reposing in the enclosure. After casting one long lingering look at the little green mound, the sisters departed, and with the hurried eager steps of childhood soon reached the street. After they had left we drew near the spot rendered sacred by the outpourings of their pure hearts. One little mound only broke the even surface of the section—the violets and the hyacinths were there, and we imagined they distilled a more delicious perfume on the "desert air" than the rarest exotics cultivated by the horticulturist. No stone told the name, age or sex of the sleeping child, but his resting place has been indelibly stamped on our memory.

GREASING AXLES.—The neglect of greasing cart and wagon wheels, not only injures the wood or iron work by the additional friction thereby induced, but it is even more injurious to the poor animals, whose business it is to draw the load, thus rendered additional burthensome. A farmer observed to us that he found in practice the best oil for this purpose both the cheapest and most efficient. All sorts of impure and dirty fat, so frequently used, have a tendency after a short time to retard, rather than to facilitate motion. Grease your wheels then whenever they require it with the best material.

THE REALITIES OF LIFE.—The seeds of great empires, like the germs of all true greatness, in both the natural and the moral world, are imperceptibly sown. The acorn is blown about for months, the sport of every fitful breeze, before it finally takes root in the soil; and season must follow season, and fashions ebb and flow for many years, before the matured oak spreads its branches to the skies, and bids defiance to the wintry blast. Myriads of little shell-fish die, and for centuries the waters roll above them before the coral reef is formed; but it is formed, and slowly yet surely raises its head above the waves, and wrecks the proudest vessel as it proceeds on its way. A Shakespeare lies in his cradle, with few eyes looking down upon his infant slumbers—he grows up from boyhood to youth, and from youth to manhood, without its being known that a mighty man is born into the world. He wanders among his native woods and streams, inquiring and thinking, thinking and inquiring, little cared for by the great men of the earth. He comes to London, poor, friendless, and with much difficulty keeps himself from starving by holding horses, and shifting scenes at theatres. He works for the day that is passing over him, and finds it long before he can spare thought for the morrow. He retires, at length, like a respectability to his native place, dies as his fathers had died before him; and on his deathbed, when his last hour is near, the beams of the sun dance on the window-panes as usual, the grass grows as usual, the flowers open their buds as usual, the evening star that night gazes wistfully down as usual, people eat and drink, laugh and chat, make merry and make money, go to bed, put their foolish heads in nightcaps, and dream foolish dreams as usual; and the world next morning rolls on as usual; as though Shakespeare had not died, as though Shakespeare had never lived, as though the world had nothing to do with Shakespeare. But Shakespeare lived, and Shakespeare still lives, and Hamlet, Lear, Othello, and Macbeth, still remain, and are realities amid a world of nothings. As it is with the growth of a coral reef, as it is with the growth of a Shakespeare, so it is with the growth of a great empire.

—*Frazer's Magazine.*

FIVE HUNDRED PERSONS DESTROYED BY A WATER-SPOUT.—On Saturday intelligence was received at Lloyd's, under date Malta, Monday, the 8th instant, of a most awful occurrence at the island of Sicily, which had been swept by two enormous waterspouts, accompanied by a terrific hurricane. Those who witnessed the phenomena describe the waterspouts as two immense spherical bodies of water, reaching from the clouds, their cones nearly touching the earth, and, as far as could be judged a mile apart, travelling with immense velocity. They passed over the island of Marsala. In their progress houses were unroofed, trees uprooted, men and women, horses, cattle, and sheep were raised up, drawn into their vortex, and borne on to destruction; during their passage rain descended in cataracts, accompanied with hailstones of enormous size, and masses of ice. Going over Catellamarre, near Stabia, it destroyed half the town, and washed 200 of the inhabitants into the sea, who all perished. Upwards of 500 persons have been destroyed by this terrible visitation, and an immense amount of property, the country being laid waste for miles. The shipping in the harbour suffered severely, many vessels being destroyed and their crews drowned. After the occurrence numbers of dead human bodies were picked up, all frightfully mutilated and swollen.

Literary Notices.

TRANSACTIONS OF THE NEW YORK STATE AGRICULTURAL SOCIETY; VOL. 10, 1850. Albany: Printed by order of the State Legislature, 1851.

The indefatigable and respected Secretary of the New York Society has again favoured us with a copy of their Transactions, which we inadvertently omitted to acknowledge in our last number. We, in common with others connected with the Agricultural press, both of the Old World and the New, have been accustomed to look forward with much interest to this annual exposition of what our near and influential neighbours have done, or are doing, in the important cause of Agriculture, and its kindred arts. It has been pleasing to witness a progressive, and during the last three or four years, a rapid improvement. Highly as we esteemed the merits of the last volume of the Transactions, the present is, we think, in some respects superior, and with several of its later predecessors, indicates that Agriculture, both as a science and an art, is making a healthy and satisfactory progress in the State of New York. Besides the report of County Societies and several valuable contributions from individuals, the volume is enriched with a Prize Essay on Agricultural Dynamics, and a very elaborate survey of the County of Seneca; embracing its history and settlement, state and progress of its Agriculture, Geology, Natural History &c., neatly illustrated with maps, sections, and cuts of fossil remains and botanical specimens. This survey was prepared by John Delafield, Esq., of Geneva, late President of the Society; an enlightened and enterprising practical farmer; and we hesitate not to say that it would do honour to the Transactions of any of the older Agricultural Associations of Europe: it as well as Mr. Thomas's Essay will, we trust, appear in a separate form. We have in this volume, consisting of 800 pages and a number of well executed engravings, much that will interest and instruct the enquiring farmer out of the State of New York; and we shall not neglect to cull something from it, that will benefit both our readers and Agricultural Societies. Mr. Johnson will please to accept our grateful thanks.

A COMPARATIVE VIEW OF THE CLIMATE OF WESTERN CANADA, considered in relation to its influence on Agriculture. By Henry Youle Hind, Mathematical Master and Lecturer in Chemistry and Natural Philosophy, at the Provincial Normal School: Toronto: Brewer, McPhail & Co. 1851.

Mr. Hind has succeeded in compressing within the limits of a small pamphlet, a mass of useful and interesting information, relative to the climate and capabilities of the Western Peninsula of Upper Canada. It has long been known that this Section of the Province possesses a milder climate, a moister atmosphere, and a more fertile soil, than other portions of this continent having the same, or even a lower latitude. The two former conditions may be satisfactorily accounted for by the influence of the immense lakes by which this section of country is almost surrounded. Mr. Hind has been at considerable pains to collect and arrange in a convenient form, from authentic sources, much valuable information relative to the Meteorological character of this now rapidly settling portion of Canada, compared with other portions of

British America and the United States. We may again refer to this publication, recommending it, in the mean time, for the perusal of our readers; and all persons looking out for a settlement.

We embrace the present opportunity of mentioning the recent appearance of Mr. Hind's "*Lectures on Agricultural Chemistry*," in a corrected and much enlarged form, by the same publishers. It is encouraging to find that a taste for scientific reading is increasing among our farmers, who will find in Mr. Hind's second edition much to interest their understandings, and, if properly carried out, to improve and render more profitable their practice. Unless farmers read and think; work with their heads as well as their hands, they must necessarily fall behind the rest of the community, not only in intelligence and in their specific calling; but as a necessary consequence, in social position and political influence. We hope that this great truth is beginning to be generally perceived and appreciated.

JOURNAL AND TRANSACTIONS OF THE LOWER CANADA AGRICULTURAL SOCIETY VOL. 4. R. W. Lay: Montreal, 1851.

We have to thank Mr. Evans, the Editor of this Journal, and the Secretary of the Lower Canada Agricultural Society, for a complete set for the past year. The "getting up," as it is technically termed, of this monthly periodical is exceedingly neat, and we have much pleasure in bearing our humble testimony to the sound practical judgment which characterizes its matter, whether original or selected. Mr. Evans has long been favourably known in Canada, as an intelligent and practical Agriculturist, and has done much with his pen, and otherwise, to improve the agriculture of his adopted country. We earnestly hope that the Journal is receiving from our Lower Canada brethren that liberal support to which it is so justly entitled. We could like to be assured that some copies were taken by our Societies, or individuals, in the Upper Province, when, perhaps, a similar compliment would be paid to our labours in the Lower. We throw out this hint, believing it would be mutually advantageous. It is high time that both sections of the United Province should become better acquainted with each other's doings and wants; and that we should learn to think and feel as *one people*: and a united effort to promote the interests of our agriculture, seems to us to afford the readiest means of obtaining so important and desirable an object.

SCOBIE'S CANADIAN ALMANAC, AND REPOSITORY OF USEFUL KNOWLEDGE, FOR 1852. Toronto: Hugh Scobie.

The continuation of this most useful, and we should now think, indispensable publication, is a convincing proof of the material and social progress of the country. A work consisting of 96 closely and neatly printed octavo pages, abounding in matter carefully selected and condensed, with which every adult person in the country must feel it advantageous, if not necessary to be acquainted, with a well executed map of a large portion of the Province, and sold at the retail price of *Seven pence Half-*

penny, needs no commendation from us. Nothing short of an enormous sale can ensure the spirited publisher against heavy loss; and as the advent of each successive year is accompanied by this most useful Directory, we may fairly presume that the public appreciate its merits. No family ought to be without it; and nothing better could be sent "to the good people at Home," informing them correctly of the progress and actual condition of this young and rapidly improving country. We regret that our presentation copy was not received in time to enable us to give an earlier notice of this deservedly increasing popular publication.


DESTRUCTIVE FIRE IN THE MUSEUM OF THE HIGHLAND SOCIETY EDINBURGH.

We deeply regret to learn from our recent English papers that a large portion of the extensive premises occupied by the well known seedsmen, Messrs. Peter Lawson and Sons, and the Highland Agricultural Society of Scotland, has been accidentally destroyed by fire. The Society's Library was burnt; but whether their numerous models of machinery, paintings, &c., sustained the same fate is not stated: we sincerely hope not. The stock of the Messrs. Lawsons was very large, and much injured; there being in subjacent cellars seeds of the value of £16,000. It was these eminent horticulturists that exhibited that splendid collection of the vegetable products of Scotland in the late World's Exhibition, which elicited such general admiration. Both parties, we are glad to find, were insured.

MR. MECCHI'S BALANCE SHEET.

This long desiderated document we find has come at last. Mr. Mecchi at a recent meeting of the London Society of Arts, at which a number of farmers were present, produced the balance sheet of his celebrated Tip-tree Hall farm, in the county of Essex, for the past year. The result is anything but encouraging. From October 30th 1850 to October 30th 1851, a clear loss of £653 18s. 4d. sustained; and this on a farm of about 150 acres, and after 7 or 8 years of lavish expenditure in manures and improvements, usually termed "high farming!" This loss is exclusive of any charges for skill and management, or domestic maintenance. When we were on this world renowned farm in 1845 our decided impression was, (which we afterwards announced in a printed report,) that liberal and scientific as might be Mr. Mecchi's system of farming, with so large an amount of capital (some six or seven thousand pounds, if we remember correctly,) invested in buildings, implements, and machinery on so limited an area, could never be made to pay; and under the present reduced rates of farm produce, we are not at all surprised at the before mentioned result. What will our readers here in Canada say to a single item of Mr. Mecchi's outlay during last year, viz, £1558 17s. 6d. for oil cake and grain, not produced on the farm, for the keep and fattening of stock! Mr. Mecchi is a very intelligent, persevering, and generous hearted man, and for his own sake and that of British farmers generally, we should rejoice to hear that he was turning his ability and capital to a better account.

Editorial Notices.

 We do not hold ourselves responsible for the opinions that may be expressed in essays, reports, or correspondence, that may appear in this Journal; and we shall always allow a reasonable portion of our space, for the discussion of subjects coming within our prescribed limits, if conducted with a view to practical utility and the discovery of truth. *Questions at all involving party considerations of political or theological matters, are altogether unsuited to our pages.*

H. T.—We will try to procure the information you desire, and inform you in our next. The amount of the growth of Hops in England is liable to great fluctuations. Hops may be and are, to our personal knowledge, cultivated profitably in Canada, on a small scale. Particulars hereafter.

INQUIRER, is recommended to purchase and study Hitchcock's Geology, a cheap and excellent work for beginners, published by Newman & Co., New York. Dana's Manual of Mineralogy (reduced from his larger work) is, perhaps, the best and cheapest you can get:—it is published for one dollar by Durrie & Peck; Newhaven. Most Canadian book-sellers will procure these works. Your other questions require time to consider: our limits do not properly embrace them.

SWEEPSTAKES FOR DURHAM HEIFERS.—We call the attention of short-horn breeders to the communication from the Hon. Adam Fergusson, in a previous page, and as the subject is one of very considerable importance, we hope to receive shortly the names and subscriptions of several competitors. *Who will be the first to respond?*

TORONTO CHRISTMAS SHOW OF BUTCHERS' MEAT.—If anything can demonstrate the importance and money value of improving the breeds of cattle, sheep and swine, the late splendid Christmas display of our butchers must have been regarded by all observers as perfectly satisfactory. Better beef or mutton we do not believe could be found in any part of the world. We have no space for details. Thanks to Agricultural Societies, which have awakened in many of our farmers a spirit of enterprise which has thus led on to profitable improvement. We observe from the papers that in Kingston, Cobourg, Hamilton, London, and other places, there was a similar result.

PRIZE ESSAY.—Our readers will find in the first portion of this number the Prize Essay on Agriculture, the following were the advertized regulations:—

"AGRICULTURAL PRIZE ESSAY."

A Gold Medal of the value of £10, will be given by the Directors of the Johnstown District Agricultural Society, for the best Essay upon Agriculture and its advantages as a pursuit, to be read before the Agricultural Association at the Provincial Exhibition, to be held at Brockville in September next. The Essay to be written by a Canadian Agriculturist whose pursuits are wholly Agricultural,


to be sent in to the Directors of the Society, before the 15th day of July next, under seal, with the name of the writer in a sealed note. The Directors reserve the right of deciding whether the Essay is worthy a premium or not. The Essay to be the property of the Society, and to be in such condensed form as to permit its delivery within the space of forty minutes.

"GEORGE S. McCLEAN,

SECRETARY.

"Brockville, 15th February, 1851."

NOTICE.

 The present number, as intimated in our last, we send to all subscribers of last year; those who intend renewing their subscriptions will please do so without delay, as our next number will not be sent unless ordered.

Toronto Markets.

	S.	D.		S.	D.
Flour \mathfrak{H} brl 196 lbs	15	0	@	16	3
Wheat \mathfrak{H} bushel 60 lbs	2	6	@	3	0
Barley \mathfrak{H} bushel 48 lbs	2	0	@	2	3
Rye \mathfrak{H} bushel	2	3	@	2	8
Oats \mathfrak{H} bushel 34 lbs	1	0	@	1	1
Pease \mathfrak{H} bushels 60 lbs	2	0	@	2	1
Potatoes \mathfrak{H} bushel	2	6	@	3	0
Beef \mathfrak{H} lb	3		@		3
Beef \mathfrak{H} 100 lbs	12	6	@	17	6
Butter \mathfrak{H} lb	0	7	@		6
Hay \mathfrak{H} Ton	40	0	@	50	0
Pork \mathfrak{H} 100 lbs	15	0	@	22	3
Turkies	2	0	\mathfrak{H}	3	9
Geese	1	3	\mathfrak{H}	1	6
Chickens \mathfrak{H} Pair	1	0	@	1	8
Ducks \mathfrak{H} Pair	1	6	@	2	0
Firewood \mathfrak{H} Cord	13	0	@	16	3
Straw \mathfrak{H} ton	22	6	@	27	6
Mutton, \mathfrak{H} lb	0	3	@	0	3½

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N. B.—No advertisements inserted. Matters, however, that possess a general interest to agriculturists, will receive an Editorial Notice upon a personal or written application.

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AND
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OF THE
BOARD OF AGRICULTURE OF UPPER CANADA.

VOL. IV.

TORONTO, FEBRUARY, 1852.

NO. 2.

PRIZE ESSAY

ON AGRICULTURE AND ITS ADVANTAGES AS A PURSUIT.

BY JOHN LYNCH, BRAMPTON, COUNTY OF YORK.

[Read before a meeting of the Agricultural Association of Upper Canada, at Brockville, September 26, 1851:—to which was awarded, as a *Second Prize*, given by the Association, a Gold Medal of the value of £5. One condition in the competition for the Prize offered by the Johnstown District Agricultural Society—the Essay obtaining which was published in our last number—was that the competitors should be restricted to *bona fide* practical farmers.]

“The science of Agriculture is yet in its infancy, and great minds are now directed to the study and development of its true principles. Experiments are in progress to ascertain the qualities of different soils; the comparative nutritive properties of different animal and vegetable productions; and the utility and efficiency of various manures.”—*Extract from the Report of the Secretary of the United States of America, December, 1850.*

In the beginning of the world the First Man was sent forth from the Garden of Eden to till the ground, and a Divine decree was made, that he and his descendants should from thenceforth live by the tillage of the earth, or in other words, the practice of Agriculture. Accordingly since that time the descendants of Adam—multiplied innumera- bly, and spread over all parts of the earth—have mostly practiced and lived by Agriculture. The greater part of them have tilled the earth with their own hands, and those who have not, have mainly been supported by the Agricultural labour of others. And after pursuing that course for five thousand eight hundred and fifty-four years, it is asserted in a State paper of one of the greatest nations of the descendants of that same man, that “The science of Agriculture is yet in its infancy.” If this be the case, at what time will it come to maturity? And what great results may not be expected

from it in its growth—from childhood to boyhood—from boyhood to youth—and from youth to manhood, when it will appear in its full vigour, some hundred thousand years hence? But it is wrong, perhaps, to treat a subject of so much importance with levity. It is undoubtedly too true, and as wonderful as it is true, that Agriculture is yet, so far, in its infancy, as to be but imperfectly understood, notwithstanding that it is the most ancient of arts, and has been the main pursuit and support of mankind for nearly six thousand years, and that during every period of that time, as well as “now” there has probably been “great minds directed to the study and development of its true principles.” While other arts and sciences of far less importance and utility are discovered and apparently brought to maturity and perfection, in a few years, or sometimes less.

The American Secretary of State, of course alluded to the *science* of Agriculture as distinct from the *art*—for though the art of Agriculture cannot be considered as in its infancy, it is comparatively but lately that science has been applied to its assistance. At least according to our present knowledge, for I think it by no means unlikely that both the science and art were better understood by some of the ancients, than they are by us at the present day. The Romans certainly practiced the art to great perfection in their own country, and also carried their improvements into the countries which they conquered. Their establishment in Britain produced such great improvements in that country that “prodigious quantities of corn were annually exported from the Island, but when the Roman power began to decline, this like all the other arts, declined also, and was almost totally destroyed by the departure of that people.”* The subsequent decline and fall of the Roman Empire caused a similar decline and fall in the Art of Agriculture over the whole Roman territory,

* Encyclopædia Britannica.

which comprised all civilised Europe and part of As.a. The northern barbarians, who dispossessed the Romans, caring little for agriculture, and it has been asserted that the ignominy thus attached to the pursuit of agriculture—which had previously been held in the highest honour—has continued in a greater or less degree to the present day, and is not yet totally effaced. Indeed I think this assertion is borne out at the present time in some of the Southern States, where none but Negro slaves are employed in Agriculture, and no white man can work at it without degrading himself in the opinion of his countrymen. How different from the opinion of the ancient Romans, amongst whom “the greatest praise which could be given to an illustrious character, was to say that he was an industrious and judicious husbandman!” And this degradation has been held to be one principal cause of the tardiness of any improvement in the art. There are many other obvious causes for its slow progress, some of which I may refer to hereafter. But after considering all the reasons which I have heard or read, or which I can imagine, it must still remain a wonder and a mystery that after so much necessary practice and experience, Agriculture should be considered at this day to be but imperfectly understood.

I would briefly refer to another State paper recently published, which contains some startling statements in reference to the imperfect system of agriculture in our own country. I mean the report of the Select Committee of the Legislative Assembly on the State of Agriculture in Lower Canada. The following is one extract from the concluding summary:—“The soil and climate of Lower Canada are favourable to Agriculture. The people are laborious and intelligent; but they do not, however, derive from the soil more than *one-fourth* of what it can produce. The cause of this is that the system of cultivation is bad.” It is certainly a melancholy conclusion that a whole community of laborious and intelligent farmers should be labouring year after year for one-fourth of the produce which they might obtain by good cultivation.

Agriculture, as it is the most ancient, is also the most important, and the most useful worldly pursuit of mankind; and in claiming for it this high distinction, it is gratifying to be able to do so without feeling or exciting the slightest degree of jealousy or rivalry between that and any other pursuit or calling whatever. If there be any pursuit in life which depends for its success upon the ruin or deterioration of some other class or calling, and can only thrive as others suffer, that pursuit is certainly not agriculture. On the contrary, the more agriculture flourishes, the more will commerce, manufactures, the arts and sciences flourish. And the prosperity of commerce,

manufactures and science, will always have a beneficial effect upon agriculture. In fact there is no other useful pursuit or calling, that does not receive benefit from the prosperity of agriculture, and does not again, directly or indirectly return a portion of that benefit to the source from whence it sprung. It would be interesting to trace the various ways in which the interests of other pursuits are identified with those of agriculture. If by judicious attention to his business the farmer can grow twenty-five bushels of wheat on the acre of land, which formerly produced only twenty, how many parties will share in the benefit of the additional five bushels, without diminishing the profits of the original producer? The labourer, the merchant, the cooper, the miller, the forwarder, the sailor, the consumer,—and who is the loser? No one. That additional produce is taken from no body. It is so much gained and added to the general stock. If the man of science, by some useful discovery in chemistry, enables the farmer to grow other five bushels, the same round of benefits will result. If the mechanic or manufacturer invent a plan to reduce the expense of conveying a bushel of wheat across the Atlantic, or to any other market, or reducing the expense of converting it into flour, however much he may thereby benefit himself or his class, a considerable portion of the profit will go directly into the pocket of the agriculturist. And even if the improvement does not in any way relate to agriculture, yet if it be productive of benefit to other classes, the farmer will either directly or indirectly, come in for a reasonable share of the good. This reciprocity of interests precludes the possibility of envy or jealousy between agriculturists and other classes, in their respective pursuits.

Some idea of the great importance of agriculture may be formed by observing the general interest which is taken in the prospects of the harvest in Great Britain and Ireland. From the time the seed is deposited in the ground, the progress and ultimate fate of the growing crop becomes a subject of the most intense interest, not only to the British farmer, or the British people, not only to the farmers of Europe—of America—of Canada, but to men of all pursuits and callings in every quarter of the globe, and this interest never ceases until the crop is harvested and safely housed, and its quantity and quality carefully ascertained. Intelligence of the progress of the plant from its first sprouting to its final deposit in the stack or barn, is continually sent to all parts of the world. Every frosty night that might injure the young shoot—every suspicious-looking swarm of flies that may hover about the filling ear—every cloudy or rainy day that may retard the harvesting—every

change of weather or of wind that may probably affect the growing crop, is carefully noted down and transmitted with lightning speed, and eagerly received and read in the most remote parts of Canada! There is, in fact, no other subject that excites such general interest. "The State of the Funds"—"French Revolutions"—"Louis Napoleon." "Denmark and the Duchies"—"Papal Aggressions," and all must give way to the grand anxiety to learn the "Prospects of the Harvest!"

This fact shows very forcibly the great importance of Agriculture; but it will show it in a still stronger light when we consider that Great Britain is *comparatively* unfavourably situated for agriculture, in soil, climate and other circumstances: and being besides a maritime, commercial and manufacturing country, it would be easy to imagine that she would dispense with being also an agricultural country, and would depend upon receiving the most of her breadstuffs from other countries, which buy her fabrics, and which are more favourably situated for agriculture than herself. But the number, industry, and necessities of her people compel her to be an agricultural country also. She dare not depend upon other countries for her bread, or the greater part of it; still she cannot produce enough for her own consumption, and a considerable portion must annually be procured from other countries; and the question which causes such great interest in the success of the grain crop of the British Islands, is with them, how much bread they will have to buy; with us and the people of other countries it is, how much we shall have to sell.

This great and general interest manifested in the progress of the British grain crop might lead us to suppose that Britain was the foremost, or at least one of the foremost agricultural countries in the world. This, however, I believe is not the case. I believe that agriculture in many parts of the Continent of Europe, has long been in a more flourishing condition than it has yet arrived at in Britain. I believe, also, that the eminent scholars who have most successfully turned their attention to making science instrumental in the improvement of agriculture were Europeans of the Continent. Still Britain has attained great improvement of late years, and particularly since the commencement of the present century. She is sufficiently advanced to be a good school for Canadians to study in, and it is not of much consequence to us whether or not there are other countries of Europe more advanced in the art than Great Britain, for it is chiefly to her that we must naturally look for instruction and improvement in these respects.

It is, however, difficult to learn agriculture by theory alone; and it is difficult and very unsafe to apply the theory or practice of any one coun-

try to another country or section, totally different in climate, soil, and other circumstances. This difficulty has been the cause of much evil, and it is one of the principal causes of retarding the progress and advancement of the art. In connexion with this part of the subject it may be remarked that, though much good has resulted from the various agricultural periodicals which have of late years been so liberally circulated, both in this Province and in the neighbouring States, yet the good has been mixed with some evil, which has given the opponents of "Book Farming," as they style it, some reason for their opposition. Some specious theory is promulgated, apparently well authenticated and proved by ample experiments; and perhaps well adapted to the place, soil, and circumstances which originated it; but which taken as a general rule, and put in practice in a different soil and climate, proves a ruinous failure! And even in the same place, and under similar circumstances, schemes and systems which are applauded to day, may in six months time be exploded and condemned, and some new theory, directly opposite, recommended by the same publication; so that the farmer who depends on an agricultural paper as his *sole guide*, will have to change each system he adopts before he has time to test its merits! This evil should not be attributed altogether to the publications themselves—though they must not be considered entirely blameless, but to the want of judgment and care in the agricultural reader. If a farmer in the backwoods of Canada, reads an account of a great crop of corn being grown on the warm sandy plains of Indiana, he should not thereupon plough up and plant with corn, fifteen or twenty acres of his heavy clay land, which in many respects is quite unfit for corn, would yet in all probability produce a good crop of wheat or peas. Or if he reads that some body has 40 bushels of wheat to the acre, which was sown on the first of October, he should not, on that account, wait a month to sow his wheat, if he is otherwise prepared to sow it on the first of September.

These publications, though generally very useful and interesting, should be used with much caution and judgment, or they will do more harm than good.

In taking Britain as our best school for agricultural improvement, it should be carefully kept in mind in what respects the two countries assimilate to each other in soil, climate, and other circumstances relating to agriculture; and in what respects they differ. It will be found that though differing widely in many respects, yet there are some circumstances in which they are similarly situated. Although lying geographically ten degrees further north than Upper Canada, the winters are not so severe as ours, but they

are about the same length, and consequently, as is the case in this country, a great part of the land as well as the care, labour, and resources of the summer, must be devoted to providing food for the cattle and horses during the winter months.

This is a great desideratum in agricultural economy, especially in countries where such long winters prevail. We cannot continue to grow large crops of grain, and keep the soil in good condition, unless we have some means of constantly procuring and supplying the earth with manure, any more than we can continue to plough two acres a day with a good pair of horses, and keep them fat, without a constant supply of nourishing food. I believe the best and most economical manure that can be obtained and used, having regard to the permanent fertility of the soil, is the dung of cattle mixed with the straw and other waste vegetable produce of the farm. And to procure this in abundance, a large number of cattle must be kept. To this end have the late improvements in Britain chiefly tended. Two things have been accomplished there, which in fact constitute the principal modern improvements, both of which are very desirable in this country; a more judicious rotation of cropping, and a thorough system of draining. The latter of these, if not very easy of accomplishment, is at least easily understood, and requires very little assistance from science. In some parts of Canada it is not much required, as on dry sandy soils; but in much of the rich clay land of the country it would undoubtedly prove of immense benefit. There is no obstacle in the way of its adoption, save the expense, which can generally be ascertained pretty accurately beforehand; and a judicious outlay for draining will, in most cases, be found a good investment.

The adoption of a profitable system of rotation of crops, is a question of far greater difficulty. And it is a question that the farmers of Canada should attend to without delay, for by the rotation at present in practice, much of the best land in Canada will at no very distant period be exhausted, and rendered incapable of producing wheat, the staple article of the country. If indeed the most simple system were the best, as it sometimes is in other matters, then the system prevailing most in that part of the country with which I am best acquainted, will hardly be surpassed, for no rotation could be more simple. It consists of fallow and wheat alternately, with as much set apart for pasture, meadow, and spring crop, as will be barely sufficient for the use of the farm. The manure of the barn yard is laid on that part of the fallow which is supposed to have the most need of it, forming a thin coating for one-fourth or one-third of the fallow ground.

Some farmers more enterprising than their neighbours, occasionally vary this rotation by growing two successive crops of wheat on a field which has had rather more than its proper share of the manure, and this deviation from the general rule, though generally resulting in a pecuniary loss to the farmer, yet materially increases his store of scientific knowledge by furnishing him with (to him) satisfactory proof, that wheat will turn to chess! On the other hand some farmers attempt a more meliorating culture, but have not generally succeeded in getting so good a return for their outlay as those who adhered more closely to the alternate wheat and fallow system.

This system has certainly succeeded better than any other that has come under my observation; this observation, however, being mostly confined to strong rich lands but lately reclaimed from the forest. On such lands, it is perhaps the best plan for the present time, or the plan which will give the greatest and most speedy return. And it is certainly not strange that the farmer should hesitate before giving up a system by which he is rapidly becoming rich, for some other plan which has got to be tried, and of which he is only certain that it will not make him so good a return for his outlay. Yet if there is any truth in the theory of agriculture, or the experience of other and older countries, the time will come—if this system be continued—when the present rich and productive land of Canada will not only fail to produce the heavy crops of wheat which it now does, but will become incapable of producing wheat at all to any profitable amount. How soon that time may come will depend on many circumstances, but chiefly on the strength and good qualities of the land, and on the extent to which this scourging mode of cropping is carried; and it is advisable for the farmer whose land is now in good condition, to anticipate that time, by adopting a more meliorating system before his land is exhausted, as it is undoubtedly easier and far less expensive to keep land in good condition than to restore it after worn out. The main principle of the improvement of cropping in Great Britain consisted in the introduction of what are called green crops, which answered the double purpose of meliorating the cultivation of the soil, and at the same time producing a greater quantity of manure, by supplying more food for cattle; thus giving the land more food and less labour. By this system the well cultivated farms in Britain, while annually producing good crops are kept in a continual state of fertility, and probably by the same system would produce as good crops a thousand years hence as they do at present. The fallowing is in a great measure done away with, being superseded by green crops; the best lands there not being fallowed more than once in seven or

eight years, while here they are fallowed once in two years.

The introduction of a greater proportion of green crops into the agriculture of this Province is certainly much required; but that it would succeed to the extent that it has done in Britain, is very doubtful. The benefit it would be to the soil is unquestionable; but the question which every farmer reasonably asks, and which is not so easily answered is, "*will it pay?*" The returns do not appear so quick and certain as the wheat growing alone. There are several reasons why such a system should not succeed so well here as in Great Britain; the high wages and scarcity of labourers, and the difficulty of disposing of the produce to advantage are serious objections, and the greater severity of our winters deprive us of some of the means of making use of the green crops which are most profitable in Great Britain. But all these objections may be removed by time and circumstances, and it seems to me that, to that system we must come at last. And it would appear to be the interest of every farmer to keep this subject constantly in view, and to consider well how far, and in what manner, this system of husbandry may be best introduced into Canada; and more especially the partial substitution of green crops for the naked fallow.

It is a disagreeable prediction, but I fear it will prove too true, that we must look to a further decline in the price of wheat, as the ground work of any material improvement in the system of agriculture in Canada. At present the farmer cannot by any process realize so much money by growing Turnips, Mangel Wurzel and Clover, as he can by growing mostly Wheat, therefore, he will adhere to the wheat growing; and it would be hard to expect him to do otherwise. But reduce the price of wheat to such a rate that he can realize more profit by growing partly green crops and feeding cattle, and it will be easy to convince him of the propriety of improving his land by growing clover, turnips, and mangel wurzel. It would be much more satisfactory if we would increase the value of the green crop, rather than depreciate that of the wheat, but it seems that one or the other must be done before the cultivation of green crops will be generally adopted in the Province.

It would, however, ill become me at the present time to predict what improvements may not very soon be witnessed, when, apparently, one of the brightest eras for agriculture is just dawning on the country. The organization of a *Provincial Board of Agriculture*, and the appointment of a *Professor of Agriculture in the University*, will be important events in the Agricultural History of Canada. These acting in conjunction

with the Provincial Association, and the several County and Township Societies, will produce a concentration of the agricultural science, knowledge and resources of the country, from which a vast amount of good may be reasonably expected. The fund of intelligence thus collected will be again distributed and circulated through agricultural publications. These publications will obtain more support than they now do, and in consequence will become, by their improved character, more worthy of support.

After all we must not depend on any *new light* in agriculture, as the source of prosperity to us farmers individually, so much as upon the proper application and husbandry of the knowledge and resources already in our possession. It will be well for every farmer, before seeking or adopting any new system, to consider well whether or not he has made the most of his present position. Let him see that his land is well ploughed and harrowed, and the seed sown in a proper manner, and at the proper season. Let him see that his fences are safe, that his crop may be secure while growing. Every farmer knows that one hog let into a field of peas, while growing, may destroy as much in one meal as would feed the same animal for a month if he would wait till they are duly prepared for him. Let him see that a portion of his richest and best land is not employed growing useless and noxious weeds, which with a little timely attention might as well be producing wheat or turnips. Let him take care that his crop is harvested at the proper time, and that he makes his hay while the sun shines. When his crop is harvested, let him see that it be properly cared for,—let there be no useless waste in thrashing and cleaning, and that the rats and mice be compounded with on the most favourable terms possible, (favourable for the farmer I mean,—not the vermin.)—that the straw is properly secured and fed to the stock during the winter, so as to be converted into manure, and that the manure itself shall not be allowed to go to waste. Let him keep the proper number, and no more, of cattle and horses on his farm, *and keep them well*. Let his farming implements be always in proper condition, and in the right place, when they are wanted. Let him, in short, attend carefully to every matter and thing that requires attention on his farm, according to the best of his knowledge and means, and he will be, under Providence, independent of any improvement in the science of agriculture, and at the same time in a position enabling him to take advantage of any such that may appear.

It may be that there is no other farmer in Canada who has neglected any of these matters, but for myself I can safely say that in my experience in farming, I have lost much more by neglect of

the means and knowledge within my power than I would ever hope to gain by any improved system that could be imagined; and I scarcely ever had a poor crop, or any misfortune in farming but what I could, with a little ingenuity, trace to some remissness of my own.

The advantages of Agriculture as a pursuit may be considered as national, and individual. Nations have generally flourished in proportion as Agriculture has been encouraged and fostered, and the decline of Agriculture and of the State, have in many cases been closely connected. If Agriculture is of such advantage to nations in general, it must be of the most vital importance to Canada, which can never be a prosperous country except by agriculture in the first instance. And Canada has many natural advantages for agriculture. Upper Canada, especially, will compare favourably with most countries. With an excellent soil and climate, and her splendid lakes and rivers. She has but one drawback, the long and severe winters. As we can do nothing to change the seasons, it becomes our interest to make the best of them, as they are. As the country becomes older and more improved, however, the winters will undoubtedly become more moderate. And those who have remarked the seasons for a number of years back well know that a considerable improvement is already perceptible. And yet with all the natural advantages which Canada possesses for agriculture, how little has hitherto been done for it by those to whom the destinies of the country have been entrusted? How few of the "great minds" of Canada have been "directed to the study and development of its true principles." And how many of the *little* minds have neglected their farms to attend to some political question, which a sensible neighbour of mine declared "would not make six York shillings difference in the course of a whole year." I would by no means intimate that the farmers of Canada are generally neglectful of their business as compared with any other people: on the contrary I think a more industrious and contented people will not easily be found, and I do not think there is at this time a more prosperous country on the face of the earth than Upper Canada. Still there is plenty of room for improvement in us all; and I do think that agriculture has not had the support and encouragement from the higher powers that its acknowledged importance demands. I think it may safely be asserted, that if as much attention had been given to agriculture, as to many other questions of far less moment, there would not now be a large section of intelligent and industrious farmers in any part of Canada, whose system of cultivation is so bad that they "do not derive from the soil more than one-fourth of what it can produce!"

A better prospect, however, is now before us. The circumstances I have before alluded to, it is to be hoped, will give a fresh impetus to agriculture from which much good will ultimately proceed, and for this improved prospect I consider we are mainly indebted to the enterprise and perseverance of those truly patriotic men, who have under great discouragement endeavoured to organize, and continued to uphold agricultural societies in the different parts of the Province. May they have their reward!

Much has been said in favour of Agriculture as a pursuit to individuals, and much more might be said, but I have no wish to exaggerate its advantages. If any person fond of ease and pleasure should engage in agriculture, expecting to find it a state of perfect happiness, and that he will have nothing more to do than sit under his vine and fig tree, and enjoy himself, he will assuredly meet with disappointment; but a similar disappointment will as certainly await the man of business who shall engage in it in the expectation of acquiring a rapid fortune. To the poor man labouring his little farm with his own hands, or probably the occasional assistance of his wife in the field, it is indeed a life of hardship. But if he has courage, perseverance and prudence, hardship will gradually wear off; with good luck, which too many depend much on—and in vain—but which rarely fails to accompany the *prudent* and *industrious*. The hard work of the farmer ceases to be a hardship to him when he sees that every day's work is laid out to advantage, and is preparing for himself and his family a future state of ease and comfort. And the consciousness of independence procured and sustained by his own exertions and the protection of Providence is a constant support to him, and encourages him to continue and increase his exertions. There are many instances in Upper Canada of men coming on a new uncleared farm, (frequently not paid for,) who were not able to provide themselves with comfortable food and clothing, but who by steady perseverance, industry, and care have acquired comfortable fortunes, and have risen from the station of poor labourers to be men of the first consequence and standing in their localities! The man of moderate means will have still far greater facilities for improving his condition without the hardships which the poor farmer has first to undergo. Agriculture is not the pursuit by which to amass a fortune in a short time, but it is undoubtedly the most certain means of procuring a comfortable competence. Some acquire large fortunes rapidly by other pursuits, especially commerce, greater fortunes than could ever be expected from agriculture. But of the thousands who start in the pursuit of fortunes through commerce, or other exciting and hazardous enterprizes many become

totally ruined, both in pecuniary means, in health, and in character, and indeed in all that renders life of any value. A still greater number fail in ultimately obtaining the necessary comforts of life, and there are few indeed who succeed to the extent of their expectations; while of those who steadily pursue agriculture there are few who fail to secure a comfortable competence.

That the pursuit of agriculture is the most conducive to health, both of body and mind, is too generally known and acknowledged to require any remarks on this occasion.

To conclude, the pursuit of agriculture may be considered as desirable to the higher classes, or the affluent, as a source of healthful recreation and rational enjoyment; profitable to the middle classes as the best means of acquiring and retaining a competency; and necessary to the lower classes, as affording the means of subsistence, and almost the only pursuit by which they can ever hope materially to improve their condition.

The Agriculturist.

TORONTO, FEBRUARY, 1852.

BEET-ROOT SUGAR.

The present extraordinary depreciation of the value of wheat, naturally induces the farmer to inquire, whether some fresh production cannot be profitably adopted—as, in some measure, a substitute for that hitherto Canadian staple; and earnest attention is already being directed to the growth of flax and hemp. The cultivation of the sugar beet has also been suggested, and without expressing any decided opinion as to the profitability of manufacturing beet-root sugar in Canada, we have taken some pains in ascertaining and arranging a number of facts relative to the manufacture of this article in Europe, that will be interesting and, perhaps, useful to the readers of this Journal.

Within the last few years the growth of beet and its manufacture into sugar, have made very considerable progress in several countries of Europe, particularly France, Belgium, Germany, and some parts of Russia. In all these countries, a large amount of cane-sugar (in some instances as much as 50 per cent.,) has been displaced by that extracted from the beet; and the effects of the competition, are already visibly felt in the depreciated value of cane-sugar; a large portion of which, both of foreign as well

of colonial growth, it has been usual to send to the British market, from whence it is re-exported to the continent. Although the domestic consumption of cane-sugar has, within the last two or three years, very much increased in England, the price, mainly it would appear from a diminished continental demand, has been progressively declining, stocks have accumulated, and the trade has been devoid of all animation whatever. We now proceed to state some interesting facts, gleaned from authentic sources, relative to this new source of wealth to extra tropical countries.

The manufacture of beet-root sugar in Europe has acquired an importance, only within the last few years. In 1828, the whole production did not probably amount to 7000 tons, more than a moiety of which was yielded by France, in which country it had a high protection against cane-sugar of Colonial, as well as foreign growth. Such was the effect of the protective duty, that in 1840, the amount of beet-root sugar in France, reached the enormous quantity of 40,000 tons! A change of policy took place, and a gradual diminution of the protective duty determined on, till in 1848, an equalization of duties on cane and beet-root sugars obtained. The effect of this policy was for a time, to paralyze the protected producers of beet-root sugar; from 39,000 tons produced in 1839, the amount in 1841, was diminished to 26,000 tons. The exposure to competition, however, soon led to improvements in the manufacture of beet-sugar, and in 1848, the year when the duties were equalized, the production had risen to 56,000 tons; and it is now said to exceed 60,000 tons, or fully one-half of the entire consumption.

In Belgium there were twenty-two beet-root manufactories in 1850, furnishing one-half the domestic consumption, and last year the number had been nearly doubled. In Germany, beet-sugar had risen from 26,000 tons in 1848, to 40,000 tons in 1851, while cane-sugar had experienced a proportionate decline. Already one-half of the sugar consumed in Germany, is from the beet-root, with every prospect of a progressive increase. In Austria, the production of beet-root sugar has increased from 8,000 tons, in 1848, to 15,000 in 1851. Even in Russia, out of an entire consumption of 85,000 tons of sugar, 35,000 tons consist now of beet-root.

The London *Economist*, to which we are chiefly indebted for the above facts, states, in reference to the working of one of the best and largest manufactories in Belgium, that beet-root at the current price of 12s. sterling, per ton, the cost of a good refined loaf-sugar, is 20s. 9d. per cwt. The great reduction in the cost of beet-root sugar which has recently been effected in the best continental manufactories, seems principally attributable to mechanical improvements in

the machinery, while chemistry has contributed no inconsiderable aid.

"A modern beet-root sugar factory, erected and fitted with all the new improvements, presents one of the most perfect processes conceivable. At one end of a low shed building of one story, the root is taken in as it comes from the field, and in twenty-four hours afterwards, the loaf-sugar obtained from it issues from the other end. The cost of such a manufactory, capable of working three tons of sugar per day, is for buildings, £2000, and for machinery, about £6000,—independent of working capital. One of the greatest improvements of late years, consists of the introduction of the centrifugal machine in more than one stage of the process, by which a better and more perfect extract is obtained. Formerly, (in 1842,) the largest extract of pure sugar from beet-root, was three per cent. Now, in Belgium, it exceeds six per cent., and if the Excise laws permitted the use of the carbonic acid process, it would be immediately increased to $7\frac{1}{2}$ per cent.; so that about $13\frac{1}{2}$ tons of beet-root, would give one ton of refined sugar." In France, the improved culture of the beet now produces from fifteen to twenty tons per acre. Another improvement lately introduced, is the following:—"Hitherto the beet-root factories have been able to work only about five months in each year, from October to March, while the root could be kept sound. Now, a means has been adopted of preserving the root, by cutting and drying it, without any detriment whatever to its saccharine properties; so that in place of five months, a factory may be worked the whole year; therefore, the same amount of capital sunk in buildings and machinery, will perform more than double the quantity of work.—By other improvements the molasses, which were formerly so bad, that they could only be used for feeding cattle, or for distilling into common spirits, which were rectified for manufacturing purposes, are now made into excellent gin, quite equal in quality to grain spirits."

In France the process is conducted on the same principles as in Belgium. But in some parts of Germany the mode of proceeding is somewhat different. Each grower, instead of selling the root to the manufacturers, makes it into a raw sugar, which he disposes of to the refiner; this perhaps is not so profitable, but may be better suited than the other method to the altered circumstances of individuals or neighborhoods.

That beet-root sugar will eventually displace altogether that produced from the cane, even in the most favored European countries, as regards labor, soil, &c., can hardly be expected. It is well known that the cultivation of the sugar-cane, and the modes now practised for extracting the

saccharine matter, admit of very great improvement; and the competition got up by the manufacturers of beet-root sugar, will assuredly call out the active energies of those of the cane.—Already considerable improvements have been, or are being effected in our West Indian colonies; and as cane sugar will always possess advantages over all other kinds, for preserving and other purposes, we may fairly look forward with almost a moral certainty that the article of sugar, which is at once both a luxury and necessary of life in all civilized communities, will be placed within the reach of the poorest classes of society.

Whether the growth of the beet, and its manufacture into sugar, could be made profitable in this Province, is a question very difficult to decide absolutely, apart from carefully conducted experiments. We hardly think that farmers could grow the roots at three dollars per ton, when the price of labor, and the casualties of weather are duly considered. In England the recent attempts to manufacture beet-sugar, have not proved, as we understand, very successful; but, as regards Ireland, brighter anticipations are indulged in; and preparations are there being made, on an extensive scale. We should much like to see the thing fairly tried in Canada, by competent and trust-worthy parties.

At the last meeting of the British Association, Professor Hancock read a paper "On the Prospects of the Beet Sugar Manufacture of the United Kingdom," of which the following is an abstract:—Public attention had been directed to this manufacture by the effort to establish a public company in London for its introduction into Ireland. He had learnt that, at Maldon, the manufacture had been attempted by a private company; but this attempt led to failure in a short time. A manufactory had been recently established at Chelmsford, and contracts had been entered into with the farmers in that neighborhood. The prospects of the manufacture depended on the answers to three questions:—1st. What was the price of beet-root likely to be for a series of years? 2nd. What was the price of refined beet-sugar likely to be after 1854? and 3rd. Would it be profitable to carry on the manufacture at these probable prices of the raw produce and manufactured article? As to the price of beet-root, its price varied in France from an average of 13s. 11d. per ton in the north-east of France, to 18s. 5d. per ton in the north-west of France. The average for the whole of France was 15s. 1½d. per ton. In Ireland the price stated to be contracted for the Sugar Beet Company was 15s. 6d. per ton, and the price at Essex was from 18s. to 20s. per ton. Thus it appeared that the present price in Ireland was higher than the average of France, and the present price in Ireland was higher than the average of the highest-priced districts of France. What the future price in Ireland and England was likely to be was a difficult question, and had not been as yet fully investigated. As to the second question—the price of refined beet-sugar after 1854—it was necessary to take the year 1854, because at present there was a differential duty in favour of home-grown beet-sugar, which would diminish each year, and cease after July, 1854. After that time the short price of refined beet-sugar would most probably

not exceed 27s. to 28s. per cwt, and the long price would most probably not exceed 40s. 4d. to 41s. 4d. per cwt. Indeed, a fall below those prices might be anticipated from three causes :—1st. From the diminished cost of production of refined cane-sugar, consequent on the increased consumption produced by the fall of its market price from 49s. 4d. to 42s. 4d. per cwt. on the equalization of the duties. 2nd. From the removal of the absurd restrictions now imposed on cane-sugar refiners. 3rd. From the competition between cane-sugar and beet-sugar, if the latter were manufactured to any extent. As to the third question, would it be profitable to manufacture from beet-root at the Irish price of 15s. 5d. per ton, or the Essex price of 19s. per ton, refined sugar to sell at 28s. per cwt? The calculations on this point which had been most relied on were two in number—that of Mr. W. K. Sullivan, chemist to the Museum of Irish Industry in Dublin, and that of M. Paul Hamoir, of the firm of Serret, Hamoir, Duquesne, and Co., the largest manufacture of beet-sugar at Valenciennes, dated 18th of April, 1850. These estimates were as follows :—

Mr. Sullivan's Estimate for Ireland.

60,000 tons of beet, at 15s per ton	£45,000
Cost of manufacture, at 9s per ton of beet....	27,000

Total outlay	72,000
Produce, 5 per cent of sugar, at 28s per cwt..	93,000

Estimated profit	£21,000
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Same Estimate applied to Essex.

60,000 tons of beet at 19s per ton	£57,000
Cost of manufacture, at 9s per ton of beet....	27,000

Total outlay	84,000
Produce, 5 per cent of sugar, at 28s per cwt..	93,000

Estimated profit only	£9,000
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Mr. Paul Hamoir's Estimate for France.

61,607 tons of beet, at 12s 11d per ton	38,400
Cost of manufacture, nearly 13s per ton of beet.....	39,900

Total outlay	78,300
Produce, 4½ per cent of sugar, at 39s per cwt 114,000	

Estimated profit in France....	£35,700
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Same Estimate applied to Ireland.

61,607 tons of beet, at 15s 6d per ton	£46,080
Cost of manufacture, nearly 13s per ton of beet 39,900	

Total outlay	85,980
Produce, 4½ per cent, of sugar, at 28s per cwt 81,430	

Estimated loss in Ireland....	£4,550
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Same Estimate applied to Essex.

61,607 tons of beet, at 19s per ton	£58,527
Cost of manufacture, nearly 13s per ton of beet 39,900	

Total outlay	98,427
Produce, 4½ per cent of sugar, at 28s per cwt. 81,430	

Estimated loss in Essex	£16,997
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From these simple calculations it appeared at once that, by only introducing into the estimates the Irish and English prices of beet-root and of refined beet-sugar, the result was so varied as to turn a profit of £35,000 at the French prices, on a capital of £78,000, into a loss of £4000 at the Irish prices, and a loss of £16,000 at the Essex prices. It followed, therefore, that the French estimate did not, as had been alleged, corroborate Mr. Sullivan's estimate; on the contrary, it

showed how fallacious it was to reason from the success of the manufacture in France to its success in the United Kingdom, without taking into account the difference of the prices of beet-root and refined beet-sugar in both countries—the difference in economic conditions between the two countries being alone sufficient to make that which was profitable in France unprofitable here. The manufacture of beet-sugar had been first commenced in France when the continental system of Napoleon and the retaliation of England had almost excluded cane-sugar from France.—From that time to the present, beet-sugar had always had the protection of an artificial price—(the present price being 39s. per cwt. in France as compared with 28s. per cwt. in this country.) In every other country in the world where beet-sugar had been produced, it had the protection of an artificial high price. The conclusion was manifest, therefore, that, from any calculations yet submitted to the public, it appeared that the manufacture of beet-sugar could not be profitably carried on in the United Kingdom.

A GOVERNMENT DEPARTMENT OF AGRICULTURE.

It is stated in the papers that Government have made arrangements for creating a new Department of Agriculture,—an object we consider of paramount importance, and if judiciously prosecuted cannot fail of being highly instrumental in promoting the best interests of the country. An office in the Cabinet, in which the true value of agriculture will be adequately appreciated, and its welfare and advancement carefully studied and fostered, is what has been recommended in this Journal from its commencement. The field for the labors of such a Minister is indeed a wide and encouraging one; and there are few, if any parts of it, but would yield a bountiful harvest to diligent, enlightened and patriotic culture. We have already in active operation a system of Agricultural Societies, embracing most of the settled portions of the country; a Board of Agriculture for the Upper Province, just commencing its operations;—the theory of the art forms a part of the regular instruction given to young men in training for school-masters in our Normal Institution; and a Chair of Agriculture is on the eve of being filled in the Provincial University, in connection with an Experimental Farm. Similar agencies, we are happy to learn, have been, or are being brought into operation in the Lower Province; and a Minister of Agriculture, in a country where *four-fifths* of the population are directly engaged in that pursuit, would be a fitting representative of these various instrumentalities,

and would be the means of promoting the great interests of the country in many other ways, as yet untried or unknown. We regard a measure of this kind, come from whom it may, as entitled to the best wishes and support of all who are really anxious to see their country prosperous and advancing. To show that we have no class jealousies, we think that the Minister of Agriculture might advantageously embrace within his sphere of duty our domestic manufactures, Emigration, and all such matters relating to the domestic welfare of the country as are not strictly included by any specific department.—Whatever squabbling mere party politicians may have about this measure,—one thing is now pretty certain, and upon that we do most sincerely congratulate the farmers of Canada, that henceforth our Cabinet will have a MINISTER OF AGRICULTURE!

AGRICULTURAL OPERATIONS AND REMARKS FOR THE MONTH.

Continue the same work as last month so far as your necessities require, in procuring fencing and firing for the coming summer. This sleighing is just the thing for the purpose and the snow not too deep in the woods to move about comfortably; and although there is just now every appearance of long continuance of sleighing, such may not be the case.

Redouble your attention to your stock, for this weather is fearful and trying to them, and I think nothing will contribute more to their warmth than a full belly, but not of cold water.

Thrash out and carry to market your grain, so that you may not be troubled with that work in the Spring, when you have your hands more than full;—and try to clean your grain so that you may obtain the first price in the market. Cleaning grain well pays better than is generally imagined upon first thought;—for in cleaning a load (say fifty bushels) an extra time, you may probably take out one bushel, which might be worth, if sold in the load, three shillings, and that same bushel might be the cause of your whole load bringing one penny per bushel less; and although you have this one bushel less to sell, you have it for your hogs and poultry, for they must be fed on an equal quantity of something else if you have not this; and besides being an advantage to your pocket, it will be a credit to your country. Is that worth nothing?

Another occupation, which is both pleasant and profitable, is the reading of well selected Agricultural works, amongst these stand first to the Canadian, our own Journal; for it supplies both Canadian experience and Canadian practice, and can be had cheap and readily, say at 2s. 6d. per copy for a year, containing 384 pages

or more than one full page for every day in the year. And it can be delivered, or sent to your nearest Post-office, for 6d. more, bringing it to the small price of a tenth of a penny per page; and beside the advantage and amusement to yourself, look also to that of your wife and family! In the rural districts of Canada, books are not always to be met with in every side-line and concession. And now that the Journal embraces the transactions of the Board of Agriculture (and that Board should be second to none in the British American Provinces) it will contain all prize essays and Agricultural reports of any importance, each of which conveys much valuable information to those of our calling. I can scarcely imagine any better or more profitable way of laying out part of the funds of each County and Township Agricultural Society than in the purchase and distribution of a copy of this Journal to each of its members. What farmer can read of the experiments and success of others, without feeling some desire to emulate their example? If we had not such a periodical as this to convey to others the experience of the improving and enterprising, the benefit of improved practice would be a long time in extending its influence over a new and thinly settled country like this by merely passing through the medium of personal intercourse. If any improvement takes place in machinery, in large manufacturing towns, where people are huddled together, the news of it flies from one to another without much difficulty, and they are all enabled at once to take advantage of the circumstance;—and how soon do they know when anything is oppressing them, or when they have not the cheap loaf! On the contrary, with farmers generally they are as ignorant of most improvements as they are of the causes of the present price of wheat; but as I now feel myself approaching political ground, I will drop this subject till I cool off.

The present is a very good time to lay out your intended operations for the Spring, and seek out some good plump seed that shall be quite free from those of weeds; for when once they are introduced on the farm, it is a most difficult matter to banish them; especially the wild mustard, so called in this country, but in the old, charlock, or chadlock. In some sections of the country there are hundreds of acres almost ruined by this noxious weed; reminding one of the fields of Canadian thistles to be met with in Lower Canada, and sometimes in Upper. While on the subject of Spring-sowing, let me draw attention to the spirited list of prizes for flax and hemp offered by Mr. Widder of the Canada Company, that ever true friend and supporter of all Agricultural improvements. Therefore all who can conveniently try the experiment, should do so, in order that Canada may have a fair trial of the varied products of its soil and climate, at our next annual Agricultural, mechanical and manufacturing Exhibition, to be held in Toronto. Let all true friends of Canadian industry and advancement, in every department of labour and

* A gentleman that was at the World's Fair, told me that he saw in many windows in London the 4 lb. loaf at 4d.!

art, produce something for the occasion, and be sure to *prepare in time*.

R. L. D.

Township of York,
January 26, 1852.

INQUIRIES RESPECTING THE ACTION OF MANURES, &c.

(To the Editor of the Canadian Agriculturist.)

{ PIFFARDINIA, Livingston Co., N. Y.,
January 10, 1852.

MR. EDITOR:—I read your valuable paper with much pleasure and satisfaction. It is always so straightforward to all your correspondents on either side the question, which is the only true way of arriving at facts. It is not constantly puffing your own wares, as is too often the case. It is my opinion that much judgment must be exercised before trying experiments not founded on *practice*. There is so much "*humbug*" in what is *falsely called science*, that the farmer is often led astray by its erroneous statements. This gives him a distaste for reading, justifies him in condemning "*book farming*," and induces him to pursue his habitual customs, whether it renders a profit or loss.

I am perfectly willing to admit that there is much benefit derived from *true science*,—but there are so many persons aiming at notoriety and "*professorships*" who base their foundation on *scientific words*, technical terms, and grammatical language, for the purpose of displaying their learning, and at the same time their "*noddle*" does not contain a practical idea. They involve themselves in a labyrinth of learned mystery, from which they cannot extricate themselves; and, in attempting to teach others their visionary pursuits, they have signally failed in the result. *Such is too much the fact*. I know many scientific gentlemen who study ancient authors, modern authors, and various kinds of authors, who have turned over as many leaves of paper and print in their *laboratory* as would puzzle the brains and confuse the imagination of a previously strong mind, and who have never turned a furrow or a compost heap in their lives, grope on in these *dark passages* until they are actually swamped in their extensive learning, and absolutely forget the place they started from. Farmers are beginning to understand this. They find that by reading practical letters, frequently published in your paper, and information derived from actual, practical, and other sources, endorsed by sound heads, strong hands, and willing hearts (the best parts of a farmer's capital) that they are more capable of taking care of themselves and their soils than trusting to the dictates of artificial education.

We all know full well that barn yard manure is a substantial fertilizer, and we likewise know that its value is estimated by the kind of food the animals consume; and we are also well aware if it is left in a position to draw away its strength that it is solely the owner's loss; but I for one *do not know* whether any of its substances *ever*

evaporate into the atmosphere.* We know too that excrements from the feathered tribes are valuable, and probably of more strength than the former, because the ingredients in the urine pass through the same channel, are not exposed to the washing of rains, and are generally conveyed to the land in their full power. We also know that night soil is still more powerful, and when a mixture of good roast beef, venison, some well fed carcasses of Southdown, and Cotswold sheep, Berkshire and Leicester hams, well seasoned with wines, liquors, and beer, *to stir them well together* in uproarious confusion, is a valuable deposit. And I would strongly recommend City gentlemen to distribute this *high farming* produce amongst their neighbouring farmers, for the production of premium crops, *and setting good examples with money*. They must be aware that such a gift would be a *substantial one*, and the farmer to whom it was given would have an opportunity of displaying his *true science*, in its management and economy. It must be adulterated with weaker excrements or common earth, plaster, or lime, to effect its immediate action, or left to decay and then used in small quantities, or in any other form the farmer's good judgment may dictate; his *science* in a judicious disposition of it, would command confidence. If applied in its crude state extravagantly, it would destroy vegetation. Every *practical farmer* is aware of all this, and applies his manure according to its substance. But the farmer is highly indebted to chemistry for discovering the means of conveying this highly valuable article from its place of deposit to that where it is more profitably invested, *void of that offensive smell*. I must ask one question on this point which I have never yet seen satisfactorily answered. Is this odour, commonly called ammonia, to be classed with fertilizers? I have an impression from my own observation only, that it is not, and that manure is of no benefit to plants until it escapes from it, nor is it converted into food for them until thoroughly dissolved. It must be in solution before it can be absorbed by the roots (the only means of support to the plant, in my opinion) and when it is in this state there is no smell to it. For instance, apply fresh urine bountifully to a plant, it sickens, and often dies, because it has fed on unwholesome food; but place that urine a short distance from it, where it can be absorbed by the inorganised earth, and there held in solution until that unwholesomeness has escaped, the roots and fibres of the plant will gradually draw toward the spot in search of its food (if the immediate soil is nearly exhausted) and when they arrive there, it will grow luxuriantly; while fully supplied with it, the roots on that side the plant will be strong and vigorous, while on the other they will be weak and dwindling. This is from my own practical observation.

Here is another point on which I would like to gain some information. Does this odour, when absorbed by charcoal, gypsum, or any mineral called absorbents, tend to add strength to them as fertilizers, or is it taken up by them for the purpose of decaying them *prematurely*? *they not possessing this agent*. This seems to me like a reasonable question. I should like to

hear from some of your scientific gentlemen in your Province on that point. My opinion is that when green manure is ploughed into the earth, and there decays, that odour is taken up by the inorganised matter for the purpose of decaying that also. There is a portion of mineral substances required for plants, and that portion varies in their kinds, and when this decaying agent is absent, and there is a scarcity of these ingredients in the soil, and those waiting for time to decompose, the plant is deficient in them; but if there is an over abundance of this steam, which is the case when the soil is full of vegetable matter, and not sufficient absorbents to exhaust it, it evaporates and contaminates the atmosphere, and when there it is destructive to the human race, if kept constantly in contact with it. Probably, Mr. Editor, I shall be called an *ignoramus* by some of your *learned* gents for thus advancing my opinion, for it is all my own imagination, none of it gleaned from *false science*. If I am in error, it will be corrected by their proof to the contrary.

Yours, &c.,

WM. HY. SOTHAM.

REMARKS.—Mr. Sotham's inquiries shall receive attention from ourselves or some of our correspondents. In the meantime we recommend him to peruse "*Norton's Elements of Scientific Agriculture*," in which he will find much light thrown upon the points mooted in his communication, and most of his difficulties removed. We think that if he would take a little more pains to make himself acquainted with the leading facts and doctrines of Chemical and Physiological Science, he would see satisfactory ground for expecting valuable aid from these sources to practical Agriculture. Counterfeit coin only shows more clearly the necessity of a careful search for the *genuine* metal. We are obliged for the article, "*Herefords v. Short-horns*," written by our correspondent and published some time since in the *Mark Lane Express*,—its re-publication in our pages, in the present state of the controversy, would, we think, throw little or no additional light upon the matter in dispute. We look upon all attempts to settle such a question as which is the best breed, *per se*, of horned cattle, as utopian and impracticable. Short-horns, Devons, Herefords, Welsh, Scots, &c., &c., are each first-rate animals in all such situations as nature, aided by art, has adapted them to; and the specific purposes for which animals are bred, whether for labour, the shambles, or the dairy, or for all these,—are, with other considerations of a subordinate character, essential elements of all calculations of this nature. We are glad to learn that the

absurd practice of awarding a prize for *the best animal* (regardless of the breed) in the Smithfield Fat Cattle Show, is to be discontinued. The idea of grouping a Runt or West Highlander with a Hereford or a Durham! It would be just as reasonable to attempt settling which, in the abstract, is *the best breed of Dogs!* We are pleased to learn that Mr. Sotham considers his new locality more favourable to the improvement of his favourite herd of Herefords.

THE LATE PROPOSED PAMPHLET ON THE AGRICULTURE AND AGRICULTURAL SOCIETIES OF CANADA.

Our readers will most probably remember, that a prospectus and subscription list was circulated through both sections of the Province last year, with a view to the publication of a little work on the above important subject; and it was the particular wish of the writer, who had taken much pains, and shewn equal discrimination in the collecting and arranging of his materials, that the work should be published previous to the prorogation of the Provincial Legislature. Unfortunately the proposal did not meet with a sufficiently encouraging response to justify the writer to proceed with the publication, although all he asked was a sufficient number of subscribers, at a mere nominal price, to cover the bare expense of paper and printing. As the appeal was made to the united Province, the result must be considered as any thing but creditable to our taste and public spirit. We are enabled thus to speak of the intended publication, as the writer some time since placed the manuscript in our hands for our perusal and opinion; and we yet hope that means will be found for bringing it before the public, and we embrace the present opportunity of urging the object on all enterprising individuals, as well as agricultural societies. With the writer's permission, we lay before our readers some extracts from a private letter received a short time since, which will show more clearly his views and intentions.

MONTREAL, Nov. 29th, 1851.

MY DEAR SIR:—I was only favored with yours of the 18th instant, and think it as well to reply to it without further delay, as I find I have one or two things to gossip about.

Though I regret the delay that had taken place, I am of course quite satisfied with your explanation, and am sorry that sickness should have been one cause. I am also glad to find that you were on the whole pleased with the pamphlet,

and more particular with the hints about model farms and education, and trust that the good opinion inspired by a first cursory reading, will have been further confirmed by a more leisure perusal, though I cannot reasonably expect that we shall agree on all points. Whatever be the pamphlet's merits or demerits, my object was most disinterested and patriotic; and I would not help being persuaded that its publication at the particular time intended, as a faithful reflector of the natural state of things, would have proved useful to our Legislators, as well as to the farming community of both provinces; and I was even sanguine enough to believe that there would have been little or no difficulty in "getting it out" in time, without any further expense on my part, than "the brain." But alas! I reckoned without my host; and you may depend upon it I will not make another such mistake again. With regard to the channel through which the manuscript can be returned to me—if returned it must be—I leave that to your discretion, and should think you would have frequent opportunities for sending a small parcel of the kind by some careful friend, on whom you would depend, to be left at the British American Assurance Office, Great St. James' street. Should you do so, I shall feel much obliged by your getting for me, and sending with it a copy of Mr. Hind's Lectures on Agricultural Chemistry,—which I see by your November number, are not only in print, but going through a second edition, though here altogether unheard of, and unknown.

I am delighted to see the Board of Agriculture in working trim, as I am persuaded that its labors will prove of incalculable benefit to the Province; as well also the doings on the Experimental Farm, which I perceive also you are getting in order; and which I am glad to see you consider "*sufficiently extensive for all illustrative and purely experimental purposes.*" In short, I think you are getting on wonderfully well in the *West*, while the wise men of the *East* seem to stick in "the slough of Despond."

Allow me to congratulate you on the approaching improved, and extended compass of your journal, which I trust will place it on a par with the *Albany Cultivator* at least. I have read Mr. Treadwell's paper in your present number, with a great deal of pleasure, though I think that, as an Agricultural document, the sphere of observations might have been more limited, with greater benefit to our farmers. Would, however, that you had a dozen such men to supply your wants. I see, by the by, that the Board have judiciously ordered five hundred copies of this month's Journal (as containing Mr. T.'s article,) for gratuitous distribution, and that they have also ordered one hundred copies of Mr. Hind's Lectures for the same purpose. You will, perhaps, not wonder at my being inclined to think, that in a truly liberal patriotic point of view, and as an example to the agricultural magnates in this quarter, they might have ventured to stretch a point; and on the recommendation of yourself and Mr. Marks, volunteered half the expense of the publication of my pamphlet in a revised form,—such as, *without the Special Committee's*

Report, &c.; in which case I should have had no objections to put my name to it. In the view which I took of things, I shunned as much as possible all narrow sectional prejudices, and made the evidence before me my only guide, and therefore though most blame was found to attach to Lower Canada, what I wrote, was, on the whole, not the less of value to the sister Provinces, and deserved to be equally known there; and by the same rule your Association, and still more so, the *Board*, should similarly make a point of extending whatever they do, so as to embrace the benefit of *the whole of Canada*, and not Upper Canada alone. But, to return to the pamphlet; had your Board made such a proposal, the Lower Canada Association would, perhaps, have been put upon their metal, and made to volunteer the other half, which would not have been more than £10. If you think a move would yet be made in that direction, I should be glad to hear from you on the subject, without delay; and in the meantime I shall have no objections to your, with that view, giving Mr. Thomson and Mr. A. Fergusson, the perusal of the manuscript, with the understanding, that they will generously bear in mind that the thing was got up in a hurry, and that considerable *unexpected* alterations have taken place since I wrote.

IMPORTANCE OF RENEWING SHEEP PASTURES.

There are many useful suggestions in the following remarks of an Ohio correspondent of the *Wool Grower*. The climate of the greater portion of the North American continent is decidedly unsuited to *permanent* pasture,—such as characterises the British Isles. There a constant succession of a number of species of grasses obtains during the growing season, and sheep are fed on the same pastures, without being subjected to renewal, for entire centuries. It is most injurious anywhere to keep sheep confined long in one field;—a frequent change of pasturage, and separating the flock into small lots, have been found by experience most beneficial:—

Being myself a practical "wool grower," my experience may be of some value to others who have not been in the business so long as I have. I find that success in raising sheep and wool, depends much upon a "thorough cultivation of the soil." It is generally admitted that if sheep are kept in "good condition"—that is, rugged and strong—they are but little liable to disease, except contagious diseases. One thing I have observed with wool growers who have made it their principal business to grow wool, that they mostly succeed well for a few years; their sheep have been healthy and in good condition; but after that their sheep have declined, their fleeces become light, and many of them become weak, sickly, and die. Then the conclusion of their owner is, that it is necessary that they should be changed to other localities, and when done, a parcel more of them die; but, if they are taken to a more favourable locality, the balance again become sheep in good condition as before, and sometimes better.

Now it is a settled principle in philosophy, "that there cannot be an effect without a cause." Then

let us look for the cause of the decline of sheep under the circumstances mentioned. When a man turns his attention to keeping sheep, from other branches of agriculture, he is very apt to go all to that branch. Of consequence, he ploughs but little, finding, as his stock of sheep increases, that he needs more of his land in grass, until his fields are nearly all converted into sheep pastures, and in that condition they remain for years. The natural consequence of this is, that the good and wholesome grasses, such as timothy and red clover, die out, and their place is supplied with those kinds that are not so wholesome, such as "June grass," "blue grass," &c.;—and, in addition to this, the sheep often run over it and leave their dung upon it to moulder upon the top of the soil, through and among which the grass grows luxuriantly, undisturbed by the sheep, if they can sustain life without it by feeding upon those places upon which their dung has not been so plentifully strewn, until they at last, and sometimes quite, gnaw the grass out by the root; when, in other places in the same field, the grass is growing luxuriantly, and the owner, seeing it, thinks his sheep are in good pasture, until hunger forces them to eat from the luxuriant grass, which sickens them, gives them the scours and other diseases, and many of them die—some by lingering a week after they are unable to stand—so, at length, he comes to the conclusion that it is best to change his sheep, for they have been upon one farm long enough or too long; which is sorrowfully the case, unless they had better fare.

Now the remedy is here; do not over-stock, but keep a due proportion of all kinds of farm stock. To 200 sheep keep ten cows, six or eight head of horses, and fifteen or twenty hogs. For to support such a proportion of farm stock as this, it will be needful to plough about one-half of the farm every year, and changing with a proper rotation of crops; timothy and clover will be newly set in each field once every four years, which will keep the pastures healthy for sheep; and as many of the older ones sold as lambs raised each year, with a prudent cross from bucks of other families of sheep, will keep a change as regular and certain as the turning of a wheel, and my word for it, the sheep will need no other change, if they have a good shepherd, and but little medicine. Not that I wish to be understood that sheep so kept are not liable to sickness or death; but that they are not as likely to get into a declining, unhealthy condition, as when kept upon pastures that have long had sheep upon them without being ploughed. * * * * * I winter my sheep by selecting from the flock the small lambs, the old ewes that appear a little on the decline, and the choice bucks, and give them a little wheat bran, mixed with threshed oats or corn meal, and sometimes a little oil-cake. The balance of the flock, as well as those selected, I feed with corn fodder, when there is snow upon the ground, so that they will eat it; but when the ground is bare and the weather moderate, they will do without any coarse food, if the grass in the fields is not too closely eat off. I have never sheltered my sheep, only in cases of winter lambs, except a few I now have, to keep them safe from dogs.

BLANKETS FOR SHEEP.

A writer in a late number of the *London Agricultural Gazette*, says "we find on examining our mortality tables for the last twelve months, that out of 600 Cheviot and black faced Ewehogs, the number of deaths has been but 16. Be it remembered, also, that with the exception of about a score, none of these ever tasted a turnip, but fared with the ewes on the hill. Since we commenced the use of jackets (small

blankets) we have especially noticed an extraordinary diminution of the cases of 'sturdy,' or water in the head. Hydatids in the brain are generally understood to be induced by long continued heavy rains, cold winds, and general privation. Any one conversant with sheep must have observed the wool along the back parts in such a way as fully to expose the skin. The connexion between the spine and the brain is obvious, and it cannot be wondered that hydatids (little sacks filled with water) should be formed in the brains of sheep much exposed to severe storms without due shelter. Hence the advantages of covering their backs with some material which will protect them in a great measure from the chilling effects of wind and rain. The material used is woollen, the size being 23 inches by 15. We lately purchased some coarse blankets that made excellent covers, each jacket costing fourpence. The rams were put with the ewes on the 22d November; and we allow 45 to each male."

The above remarks from a flock-master of large experience in reference to the cause of hydatids, or what we should call water in the brains of sheep, are interesting in a medical and physiological point of view. We know one breeder in Vermont who covers the back of each sheep with a half yard of common sheeting, painted to shed rain. The practice is founded in reason, and is likely to extend—literally making cotton tributary to the production of wool. The growers of the former staple will not object if every sheep in the United States and Europe has a cotton "jacket;" for one that will answer every intention can be made cheaper of cotton than of wool. The comfort of domestic animals at the South is sadly, and most expensively neglected.—*Southern Cultivator*.

FARMING IN IRELAND.—An association of English capitalists, comprising several Railway Contractors, has been formed, for the purpose of purchasing land in Ireland, and reselling or letting it in farms, thoroughly drained, fenced and otherwise fitted for cultivation on the English model. Many estates are now selling in Ireland at from 10 to 12 years purchase; the result, it is confidently believed, must be highly beneficial to that country.

DIMINUTION OF THE WHEAT CROP.—The *Journal of Agriculture* states that 12½ bushels of wheat per acre is the present average of the State of New York; that of Ohio being 15 bushels. Thirty years since the former averaged 30 bushels, and the latter 35 bushels per acre. This result is attributed chiefly to the carrying off phosphate of lime from the soil by repeated Wheat crops, without any renewal of that indispensable ingredient. In some sections of Upper Canada the same effects are observable, only as yet in a lesser degree.

MICE IN BARN.—A correspondent of the *Rural New Yorker* observes that hay-mows having Spearmint in them were free from rats and mice, while other parts of the barn were much infested; and that a waggon load of mint scattered through the grain, effectually prevents these depredations.

EFFECTS OF PEAT CHARCOAL IN PRESERVING POTATOES.—The *Farmer's Herald* states that in putting a quantity of potatoes in the ordinary way, a small quantity of peat charcoal was strewn over the tubers in one of the pits; and on opening it the potatoes were quite sound, while in the other pits two thirds were quite rotted. All the other circumstances being alike, the difference in the result is attributed to the sole action of the charcoal.

PEDIGREES OF SHORT HORN CATTLE.

We have received from the Honorable Adam Fergusson the following account of Durham Stock recently bred by himself. As the facts are arranged under distinct heads, a form so convenient for reference, and comprising within a small compass all that appears essentially necessary for collecting materials for a Canadian Herd Book, we publish the list entire that others may adopt the same, or a similar arrangement. We again call the attention of parties that may send in lists of pedigrees to the necessity of writing them in a *very plain hand*, and to be particular in the spelling of *proper names*; some of which, in the pedigrees of two or three horses recently received, we cannot possibly make out. It is superfluous to urge upon the breeders of Stock the importance of having a Provincial list of pedigrees, to which easy reference can be had by the public; and as soon as sufficient materials are collected the same might be published in pamphlet form. Stricter attention for the future, will no doubt be given to the question of *pedigrees* at our Provincial Exhibitions, in case of all stock purporting to be of pure breed; and it would be well for agricultural writers generally, to be more particular in regard to this matter, than, we believe is usually the case. Whatever difference of opinion may exist as to which is the best breed of cattle generally adapted to the climate, pastures and wants of this country,—a matter by the bye attended with almost insuperable difficulties in its solution,—it must be obvious to all that the introduction and perpetuation of the *best blood* of the various improved breeds is a thing of vital importance to the agricultural prosperity of this young country. :—

BULLS BRED BY HONORABLE ADAM FERGUSSON, CANADA WEST.

<i>Date of Birth.</i>	<i>Name.</i>	<i>Colour.</i>	<i>Sire.</i>	<i>Dam.</i>	<i>Remarks.</i>
April 6, 1845.	Fergus,	Red & W'te,	Wellington,	Pansey,	For pedigrees of Sire and Dam, see American Herd Book, sold to John Harland, Esq., Guelph.
May 4, 1846.	Althorpe,	Roan,	Symmetry,	Nonpareil,	Sold to E. and W. Gwillimsbury Society. For pedigrees of Sire and Dam, see A. Herd Book.
June 10, 1847.	Durham,	Roan,	Duke of Wellington,	Nonpareil,	Sold to Adelaide Society. For pedigrees, see A. Herd Book.
May 27, 1848.	Wheatear,	Red,	Howitt's Y'ng Bull	Nonpareil,	Gave his name from seeing Wheat in ear the day he was calved. Mr. Howitt's Young Bull was bred by Mr. Vail, Troy. Sire Meteor, Dam Hilpa. See A. Herd Book. Wheatear, was sold to Woodstock Society.
June 27, 1848.	Favorite,	Roan,	Althorpe,	Pansey,	Sold to Woodstock Society. For pedigrees of Dam, see A. Herd Book.
May 21, 1840.	Bruce,	Red & W'te,	Durham,	Pansey,	Gave him to Owen Sound Society.
June 12, 1851.	Kossuth,	Roan,	Halton,	Victoria,	Halton was purchased from Mr Vail, and bred by him. Sire Meteor, Dam Lady Barrington, see A. Herd Book. He was owned by John Wetenhall, Esq., and at his death became, by purchase, the sole property of A. Fergusson, who sold him for a large price to Mr. Chapman, Madison, Co., New York. Halton, when sold to Mr. C., was 3 years old. For pedigree of Victoria, see A. Herd Book.

COWS AND HEIFERS BRED BY HONORABLE ADAM FERGUSON, CANADA WEST.

Birth.	Name.	Colour.	Sire.	Dam.	Remarks.
April 20, 1847.	Beauty,	Roan,	Duke of Wel'gton.	Victoria,	For Sire and Dam see A. Herd Book. Sent this Heifer to my son David.
Febr'y 4, 1848.	Lady Elgin	White,	Althorpe,	Flora,	Sold to Mr. Ferguson, Kingston, in 1851, with a Bull Calf, by Halton.
April 6, 1849.	Snowdrop,	White,	Durham,	Flora,	
March 29, 1850.	Mayflower,	White,	Halton,	Flora,	
April 20.	Adelaide,	Roan,	Halton,	Lady Elgin	
April 23.	Hawthorn,	White,	Halton,	Lavinia,	Dam out of Lavinia II. Sire, Duke of Wellington, for both see A. Herd Book.
May 1.	Dairymaid,	Roan,	Halton,	Beauty,	
July 1.	Duchess,	Red,	Halton,	Victoria,	
July 1.	Sprightly,	Roan,	Halton,	Daffodil,	Daffodil, bred by Mr. Sherwood, Auburn, N. Y., Sire, Symmetry, Dam Dairymaid, see A. Herd Book. Sold Daffodil in 1851, to Mr. Ferguson, Kingston, with a Bull Calf by Halton.
August 14,	Countess,	Red,	Halton,	Pansey,	Sold Pansey to Noel Becar, Esq., New York, at Rochester Show, Sept., 1851.
April 18.	Cowslip,	Roan,	Halton,	Flora,	
April 19.	Daisy,	Roan,	Halton,	Lavinia,	
July 5.	Primrose,	Roan,	Halton,	Pansey.	

ADAM FERGUSON.

Woodhill, January 28, 1852.

GROWTH OF HOPS IN ENGLAND.—Our correspondent, H. T., will find in the following table the information he requires. The "old duty," by which all previous estimates or betting are determined, amounts to little more than half the whole of the impost paid into the Exchequer. For example—the old duty for 1851, was £130,055; while the actual Revenue duty amounted to £237,490. The Excise duty on English Hops has received an increase two or three times, and it now amounts almost to £1 sterling per 112lbs. The crop is liable to great fluctuations, as the following table will show; and the same remark applies to prices. The fly, or *aphis*, is one of the most destructive pests to hops, in the old country. For the mode of planting and cultivation our correspondent is referred to the 1st vol. of this Journal, for 1849, pp. 87, 88:

Hop Duty from the Year 1807, with the number of acres of land in cultivation:—

Year.	Acres.	Old Duty.
1807	38,218	£100,071
1808	38,436	251,089

Year.	Acres	Old Duty.
1809	38,357	63,952
1810	38,265	73,514
1811	38,401	157,085
1812	38,498	30,561
1813	39,521	131,482
1814	40,575	140,292
1815	45,150	123,378
1816	44,219	46,302
1817	46,293	66,522
1818	48,593	199,465
1819	51,014	242,076
1820	50,048	138,330
1821	45,662	154,609
1822	43,766	203,724
1823	41,458	26,058
1824	43,419	148,833
1825	46,718	24,317
1826	50,471	269,331
1827	49,485	140,848
1828	48,365	172,027
1829	46,135	38,398
1830	46,726	88,027
1831	47,129	174,864
1832	47,101	139,018
1833	49,187	156,905
1834	51,273	189,713
1835	53,817	235,207
1836	55,422	200,322
1837	56,323	178,578
1838	55,045	171,556
1839	52,305	205,556

Year.	Acres.	Old Duty.
1840	44,805	34,091
1841	45,769	146,159
1842	43,720	169,776
1843	43,156	133,431
1844	44,485	140,322
1845	48,058	158,008
1846	51,948	242,929
1847	52,328	215,805
1848	49,232	212,416
1849	42,798	79,791
1850	43,127	233,393
1851		130,055
Excise Duty on Hops... 0 18 8 per cwt.		
1840—5 p. cent additional 0 0 11 6-20 "		
0 19 7 6-20 per cwt.		

HORTICULTURE.

THE SCIENCE AND PRINCIPLES OF GARDENING.—NO. II.

ORGANS AND PARTS OF PLANTS.

II.—ROOTS.

The root is a very important organ of the plant, serving to fix it in the ground, or whatever else it may grow upon, and is the medium by which it obtains nutriment from the soil. Roots are divided into numerous branches, and are devoid of leaves or scales upon their surface, and they generally descend more or less deeply into the earth, according to the nature of the plant and soil, so as to avoid exposure to light. A knowledge of the functions of the root is of the utmost importance to the successful cultivation of plants in general.

Roots may be regarded for practical purposes, either as fibrous or simple; and according to their capacity and disposition to form numerous little branches, will the plant that possesses them, be either easy or difficult to transplant. Trees or plants that have the habit of producing simple roots—"tap-roots" as they are usually called—are among the most uncertain to remove, unless they are transplanted young, when they will often be all the better for some purposes if they have the tap-root shortened, and are thus compelled to throw out side rootlets. The whole of the cabbage tribe are of this description. Other kinds of plants are thrown much sooner into fertility by one or several removals, because the reduction of the roots checks any propensity they may have to form superfluous wood and foliage. This is the case with most fruit-trees, and with many flowering plants.

Roots spread themselves, either horizontally or downwards. Some plants have a natural leaning to either the one or the other of these habits, and should be planted in deeper or shallower soil accordingly. But, in general, those which have a great depth of earth to grow in will be most luxuriant; while such as have their roots necessarily kept near the surface of the ground will be more fruitful and productive, as shall be hereafter explained.

In very poor sandy or gravelly soils, and espe-

cially in pure sand or gravel, the roots of plants have an interesting tendency to multiply themselves, and produce a profusion of fibres; as if for the purpose of picking up nutriment from a greater multitude of quarters, when it becomes more scanty. They likewise, in such positions, occasionally form small tubers on the roots, apparently to enable them to lay up moisture in themselves, against the occurrence of a particularly dry period. The former of these facts is instructive as well as pleasing, for it indicates that shrubs or trees reared on a light, poor, and shallow soil, will have the greater quantity of root-fibres, and thus be best fitted for transplanting. We have recently observed, however, with some astonishment, that trees planted on mere sand-hills, near the sea-coast, form scarcely any fibre, but send down long succulent roots to an immense depth—evinced a wonderful power of adapting themselves to circumstances; for, if they were merely to make lateral fibres in such a spot, like the more humble herbaceous tribes, they must soon perish; whereas, by striking down so deeply, they have the means of obtaining constant moisture in the driest weather.

III.—SPONGLETS.

At the top of every root or root fibre, there is a growing succulent point, like a piece of half formed wood, which botanists call the spongiole or spongelet, and which is the medium by which the great bulk of the plant's nutriment is imbibed. This spongelet, which is just an extension of the half elaborated sap or pulp before it is hardened, is extremely tender, porous and absorbent, and is paler, more fleshy, and transparent than the older parts of the roots. It takes up water and other liquids, and immediately conveys them throughout its substance as a sponge does. It will receive nothing but liquids, though it does not reject any thing they may have in solution. This is a fact of considerable importance, for it shows that whatever is intended for the food of plants, must be capable of being easily removed to a liquid state. Manures, therefore, or chemical applications, must either be readily reducible by water, or be rendered so by the addition of some acid or other ingredient.

As the spongelets play so very essential a part in the growth or sustenance of vegetables, it should always be a leading object to preserve and multiply them, where vigorous development is desired, or to lessen their number in case the plant is becoming too exuberant. In removing some plants, therefore, if balls of earth are attached to their roots, a large portion of the spongelets will remain uninjured, and they will thus experience a less decided check; or, if the increase of the plant's subsequent capacities for enlarging itself be sought, transplantation, with its necessary destruction of many spongelets, will produce a tendency to throw out a far greater number, and thus give the means of future extraordinary growth. It is pretty generally known, that most vegetables possess the power of renewing, and indefinitely multiplying their root fibres, on which the spongelets are situated, wherever these get severed or removed. At the same time, the reduction of the number of spongelets will often,

by staying undue luxuriance, induce a state of greater fertility, or entirely bring it about in plants that have previously been barren.

Newly planted things, being deprived for a time of a large proportion of their spongelets, require a larger supply of liquid food, if it be in the growing season, that the spongelets which remain may take up a greater quantity of it, and thus make good the deprivation. It is for this reason that the early autumn is considered preferable for planting all kinds of trees and shrubs, because there is not, for a long period afterwards, any demand upon their resources, and they are all able to form new spongelets before these are required. The beginning of the spring, or just before they acquire their full power of vitality, is the next best season, as they then have all the strength of the renewed vital energy to enable them rapidly to form new spongelets.

The excretions supposed to be given off by plants through their spongelets, and which were thought to deteriorate the soil, and render it unfit for a second crop of the same kind, are now proved to have little or no existence. The cause of the deterioration of soils by particular crops, for others of a similar kind, will be found in the fact, that certain plants withdraw peculiar gases or elements from the earth, and these have again to be supplied before similar plants can be satisfactorily grown on the same soil.

IV.—PORES.

In addition to the spongelets as a means of taking up food, plants are dotted all over the leaves, stems, and even roots, with numerous minute openings, called pores, which are often smaller than pin-holes, and by which liquid food in the soil, or that which is floating in the air, is freely received. Until very recently it was believed that the nutriment of plants was obtained almost solely through the roots. But it has now been proved that they *can* exist *wholly* on atmospheric supplies, and that they draw very largely from this resource at all times. The pores, therefore, are no doubt the means through which such nourishment is appropriated. But they are also the agents by which respiration is carried on, and probably are admitted. Those on the leaf undoubtedly lead to small air-cells, and are probably similar to the nostrils of animals, or the pores in the human body, or rather to the breathing pores in the sides of insects.

These pores have usually raised lips, which vary in their external forms, and appear to shut when wetted or in the dark, but they are always open when exposed to the dry atmosphere or the sun's light. It is through their pores that plants evaporate most of their superfluous water, similar to what animals do by breathing and perspiration.

The obstruction of the pores in animal bodies is well known to be productive of cutaneous diseases, and the operation of the like cause in plants is certain to induce a sickly state of the vegetable system. Hence the accumulation of dust of any description on the leaves and stem, is highly injurious; and in the absence of rain the gardener finds it necessary to apply artificial watering to out-of-door plants; while those grow-

ing in rooms or conservatories, exposed to dust, require a frequent and careful watering or sponging of the leaves, in order to keep them in a growing and healthy condition.

V.—SAP AND PULP.

The liquid matters imbibed by the spongelets and pores of plants, and transmitted through their system, acquire, as soon as appropriated, the name of sap; and after the two-thirds of the more watery constituents of this have been thrown off by evaporation, the remaining third, which is like the blood of animals, will be consolidated into a thicker consistence, termed pulp. The sap of plants, then, is the food which they have taken into their system in its crude state. Being diffused through their stems, and elaborated in the leaves, and the mere water discharged through the pores, it becomes pulp. This last, being the vital part and substance of plants, determines, by its abundance or deficiency, their healthiness or strength. If too little solid matter is taken up by the sap, (as will be the case in poor soils,) the plants will be weakly and yellowish; or, if the amount of light and air supplied to the plants, be insufficient to separate the watery from the substantial parts of the sap, and to bring it to its proper consistency, the shoots will become feeble, drawn, wanting in color, and the leaves pale and tender.

Pulp is chiefly composed of the carbon, or charcoal taken up by the sap, and is itself of a dark blue color; but the transparent tissue of the leaf in which it is enclosed, being more or less yellow, the combination of the two colors forms green, as blue paint mixed with yellow produces green. This will account for the yellow color of leaves when the pulp is deficient.

TO MAKE YOUNG PEAR TREES BEAR.—I was afflicted by the sight in my garden for four or five years, of the most luxuriant and thrifty young pear trees, which would not bear, but all their strength ran to wood. Vexed at this, I resolved to try the effect of bending down the branches so as to check the flow of sap and cause them to form fruit buds instead of wood buds. Accordingly, the first week of December, 1847, I filled my pockets with stout twine; I drove down some small pegs into the ground underneath my trees, [which had branched low, so as to make dwarfish heads;] I then tied a string to the end of every long shoot, and gradually bringing down the end of the limb till it curved down so as to make a considerable bend or bow, I fastened it in that position either by tying the other end of the string to the peg, or to another branch or a part of the trunk.

According to my expectation, the tree next year changed its habit of growth, and set an abundance of fruit buds. Since that, I have plentiful crops of fruit without trouble—take good care not to let many branches go on the upright system.—*Horticulturist*.

TAPIOCA.—A milk-white substance is deposited by the juice of the mandioca root, which being collected, and hardened by exposure to the sun, constitutes the article so well known as tapioca, from which wholesome and delicious puddings are made. So very poisonous is the root in its natural state, that it has been found to occasion death in a few minutes when administered experimentally to animals, and it is said that the natives used it with great effect many

years in destroying their Spanish persecutors. It has been ascertained by dissection that this poison operates by means of the nervous system, producing immediate convulsions and exquisite torments, as soon as it is introduced into the stomach. In some instances it has been used in the executions of criminals, in which cases death invariably ensued within five to ten minutes after imbibing it. The fatal principle appears to exist in certain gases which are dissipated by heat. This is conclusively proved, from the harmlessness and highly nutritious properties of the farina, when the process of manufacture has been completed.

It has been stated on good authority, that a single acre of land planted with the mandioca root, will afford nourishment to more persons than six acres of wheat planted in the same manner, and my own observation fully justifies this assertion. Concerning the value of the plant, Southey remarks with truth, that "If Ceres deserved a place in the mythology of Greece, far more might the deification of that person have been expected who instructed his fellows in the use of mandioca."—*Paraon the Amazon*.

SIBERIAN CRABS FOR HEDGES.—I saw not long ago a line of hedge which was made by planting the seeds of the Siberian Crab—a small ornamental variety of the apple, which is well known in the nurseries, and sought after for its little fruit. The tree, naturally, is a small one, and has not exactly thorns, but branches which become somewhat thorny and resisting. It naturally forms a thicket with a good many branches, so that it takes and keeps the hedge form very easily. He sowed the seeds of these crabs in the garden and when the seedlings were a year old he transplanted them into the row where they were to grow as a hedge. They were set six inches apart, in a single row, and the tops were cut off within three or four inches of the ground the same spring they were planted. This made the hedge bushy and thick at the bottom.

The hedge is now five years planted. It has attained its proper size, and having been regularly trimmed every spring, has become one of the thickest and the most impenetrable hedges I have ever seen. It requires trimming but once a year, and seems to me well able to take care of itself the rest of the time. Besides this, it has a fine appearance in the spring, when it is covered with blossoms, and in the autumn, as it begins to bear considerable fruit. Would not the Siberian Crab, or its seedlings, make a good farm fence?—*Horticulturist*.

CANADA BALSAM.—This Balsam, which is very useful to farmers and mechanics, and principally known as an ingredient in varnishes, may be had from the druggists. It is the pure, unadulterated sap, or turpentine of the American Pine, and is the only remedy for wounds within reach of the backwoodsmen of Canada. It is also used by the Laplanders and other northern nations. See that the wound be perfectly free from splinters, gravel, and all other irritating substances. If a cut, bring the edges of the wound together, pour some of the balsam upon a bit of lint or linen rag folded, and lay it on the injured part. Bind it up, and on no account disturb it unless it becomes painful, thereby indicating that the balsam does not agree with it. If it gets ruffed or loose, it may be necessary to apply a fresh dressing of balsam, but it generally adheres firmly, keeps the wound cool, and does its work of healing steadily, coming away when its part is done, and the flesh sound. The balsam has also been successfully applied to indolent sores

after blisters, or where the skin has been otherwise frayed

For animals, simply apply the balsam either with or without rag or lint, according to the part injured. It will harden of itself, and form a sufficient protection against the air and the flies.

FAMILY ECONOMIST.

THE BOUNDARY LINE OF KNOWLEDGE.—We cannot artificially produce the organic acids from their elements. We are still ignorant how they are formed in plants and animals. All that is known on this point concerning the vegetable acids is, that they are formed from carbonic acid and water, the two chief sources of the nourishment of vegetables. But by what power, and in what manner, these two bodies are forced to combine in the grape-vine to form tartaric acid, in the fruit of the lemon tree to form citric acid, in apples to form malic acid, &c. we are entirely ignorant. We here stand as it were on the boundary line of our knowledge. Whether it will be permitted to us at some future period to advance beyond this limit, further investigations must show. In the meantime we must assume that the unknown power which causes the shoots, leaves, and blossoms to put forth from the seeds—we call it vital power—is also able to produce chemical combinations and decompositions more powerful and manifold than it is possible for the chemist to accomplish in his retorts and crucibles. In this sense we regard the organic acids, as in general all organic substances, as the chemical productions of the vital activity of plants and animals. —*Stockhardt's Experimental Chemistry*.

HOW TO ADMONISH.—We must consult the gentlest manner and softest seasons of address; our advice must not fall like a violent storm, bearing down and making those to droop whom it is meant to cherish and refresh. It must descend as the dew upon the tender herb, or like melting flakes of snow; the softer it falls, the longer it dwells upon, and the deeper it sinks into the mind. If there are few who have the humility to receive advice as they ought, it is often because there are as few who have the discretion to convey it in a proper vehicle, and to qualify the harshness and bitterness of reproof, against which corrupt nature is apt to revolt, by an artful mixture of sweetening and agreeable ingredients. To probe the wound to the bottom, with all the boldness and resolution of a good spiritual surgeon, and yet with all the delicacy and tenderness of a friend, requires a very dexterous and masterly hand. An affable deportment, and a complacency of behaviour, will disarm the most obstinate. Whereas, if instead of pointing out their mistakes, we break out into unseemly sallies of passion, we cease to have any influence.

FRIAR BACON'S PROPHECY.—"Bridges," says he "unsupported by arches, can be made to span the foaming current; man shall descend to the bottom of the ocean, safely breathing, and treading with firm step on the golden sands never brightened by the light of day. Call but the secret powers of Sol and Luna into action and behold a single steersman, sitting at the helm, guiding the vessel which divides the waves with greater rapidity than if she had been filled with a crew of mariners toiling at their oars. And the loaded chariot, no longer encumbered with the panting steeds, darts on its course with relentless force and rapidity. Let the pure and simple elements do thy labor; bind the eternal elements, and yoke them to the same plough." Here, says a writer in *Blackwood's Magazine*, is poetry and philosophy wound together, making a wondrous chain of prophecy.



PERSPECTIVE VIEW OF THE NEW NORMAL SCHOOL AND EDUCATION OFFICES FOR CANADA WEST.

NEW NORMAL AND MODEL SCHOOLS.

Through the politeness of the Chief Superintendent of Education we are enabled to give our readers a view of the New Normal School in this City, now fast drawing to completion. It will be recollected that the interesting ceremony of laying the corner stone was performed by his Excellency the Governor General, July 2nd, 1851, amidst a very large concourse of people; including the principal members of the Government and Legislature, and the most influential friends of academic, as well as popular education. Behind on the right is seen a small portion of the Model School. When the buildings are completed and the grounds laid out and planted, the whole will be highly ornamental to the city, and highly creditable to the good taste and enlightened and patriotic sentiment of the chief promoters of this important undertaking. The following description is taken from our useful cotemporary—the *Journal of Education*.

The Normal and Model Schools for Upper Canada—now in progress of erection—are situated upon the centre of an open square, bounded on the north by Gerrard Street, on the east by Church Street, on the south by Goold Street, and on the west by Victoria Street, in the City of Toronto. The distance from the Bay is about three quarters of a mile. The situation is a very beautiful one, being considerably elevated above the business parts of the City, and commanding a fine view of the Bay, Island, and Lake. The Square, which contains seven acres and a-half of ground, was purchased in August, 1850, from the Hon. Peter McGill, of Montreal, by the Council of Public Instruction, for £4,500, in cash. The estimated value of the property is about £1,000 per acre. The amount of the Legislative Grant for the purchase of the site and the erection of the buildings, was £15,000. The amount of the contract for the erection and completion of the building, is £8,790, exclusive of extras, Architects' commission, warming, &c. It is estimated that the furniture, &c., for the building, will cost about £1,000 or £1,200.

In a building of so great an extent, it appeared to be neither desirable nor expedient to adopt a rich or highly finished style of embellishment. The whole has been designed with a view rather to utility than for effect, care being taken however to maintain that fitness of decoration by which the purpose and importance of the Institution may be characterised and upheld.

The principal Normal School Building, as seen in the perspective, will be 184 feet 4 inches frontage, by a depth on the flanks, east and west, of 85 feet 4 inches.

The front will be in the Roman Doric order of Palladian character, having for its centre, four pilasters of the full height of the building, with pediment, surrounded by an open doric cupola, of the extreme height of 95 feet. The principal entrance (to the Offices of the Educational Department, &c.) will be in this front; those for the male and female students being placed on the east and west sides respectively. In the centre of the building will be a large central hall, (open to the roof, and lighted by a lantern,) with a gallery around it, at the level of the

upper floor, approached on each floor by three corridors—south, east and west—and opening on the north to the Theatre or Examination Hall.

On the East side, the accommodation on the ground floor will be as follows:—

School of Art and Design, - -	36' : 0" x 28' : 0"
“ “ “ “ “ “ “ “ “ “	36 : 5 x 28 : 0
Male Students' Retiring Room,	36 : 0 x 30 : 0
Council Room, - - - - -	39 : 0 x 22 : 0
Male Students' Staircase, - - -	17 : 6 x 11 : 0

On the West side:—

Waiting Room, - - - - -	22' : 8" x 14' : 8"
Ante-Room, - - - - -	22 : 0 x 14 : 3
Chief Superintendent's Room, -	28 : 0 x 21 : 0
Depository for Books, Maps, &c.	28 : 0 x 21 : 0
Depository for Apparatus, &c.	22 : 8 x 14 : 8
Female Students' Retiring Room,	36 : 0 x 26 : 10
Recording Clerk's Office, with	
fire proof vault, - - - - -	37 : 11 x 22 : 0
Second Clerk's Office, - - - -	22 : 0 x 14 : 3
Female Students' Staircase - -	17 : 6 x 11 : 0

North of the Central Hall is the Theatre, with Lecturer's entrance in the centre, and side entrances east and west, for male and female students respectively. This portion of the Theatre is designed to accommodate 470 persons, and including the galleries, 620. Around the Theatre, and beneath its gallery, are east and west corridors, by which the students will reach the Model School.

By this arrangement it will be seen, that except when actually in the presence of the Masters, the male and female students will be entirely separated.

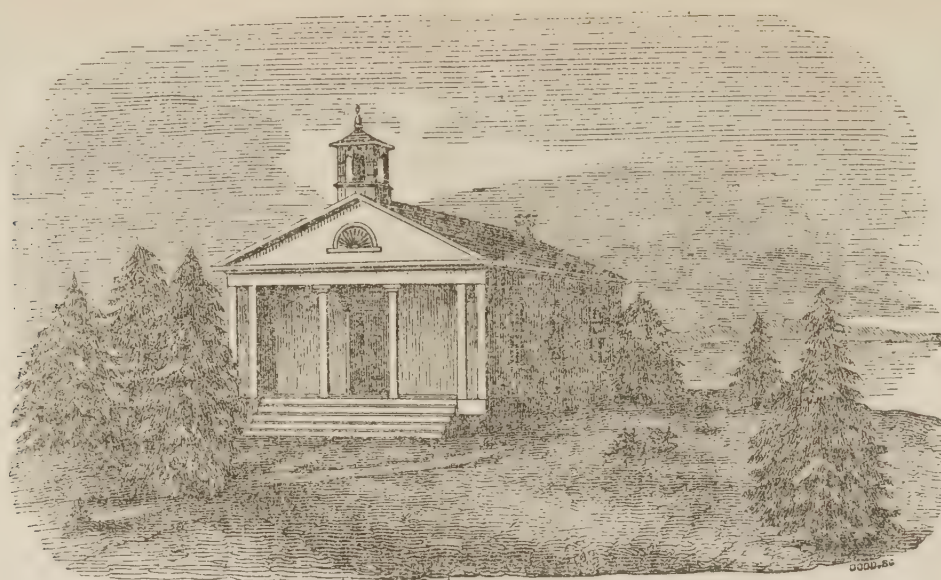
Passing (by the corridors last named) to the Model School, which is 175 feet 6 inches frontage, by 59 feet 6 inches, the students enter the boys and girls' schools by doors to the east and west, each of which has a large school room at its centre, 56 feet 6 inches x 33 feet, capable of accommodating 300 children, with four smaller class rooms adjoining it, about 17 feet x 15 feet 6 inches each. The boys and girls' entrances (like those for the students of the Normal School already described) are at the east and west ends of the building—such entrances having each a hat and cloak room and master's (or mistress') room on either side. These schools therefore will together accommodate 600 children.

Returning to the Normal School, and passing to the upper floor: on the landing of the staircases are entrances to the gallery of the Theatre, which is designed to accommodate 150 persons.

On the upper floor is the Central Hall, with its gallery connecting the east and west corridors, communicating with the following rooms:—

Class Room, - - - - -	56' : 0" x 36' : 0"
“ “ “ “ “ “ “ “ “ “	56 : 0 x 36 : 0
“ “ “ “ “ “ “ “ “ “	45 : 2 x 28 : 0
“ “ “ “ “ “ “ “ “ “	32 : 8 x 23 : 0
1st Master's Room, - - - -	22 : 0 x 19 : 5½
2nd Master's Room, - - - -	22 : 0 x 19 : 5½
Museum, - - - - -	42 : 0 x 22 : 0
Library, - - - - -	39 : 5 x 22 : 0
Laboratory, - - - - -	21 : 6 x 12 : 0

In addition to the accommodation thus enumerated, there are, in the Basement, rooms for the residence of the Janitor, together with furnace rooms, from whence warm air will be served to the whole building. Great attention has been bestowed upon the efficiency of the warming and ventilating, and it is confidently anticipated that the system adopted will be highly successful.



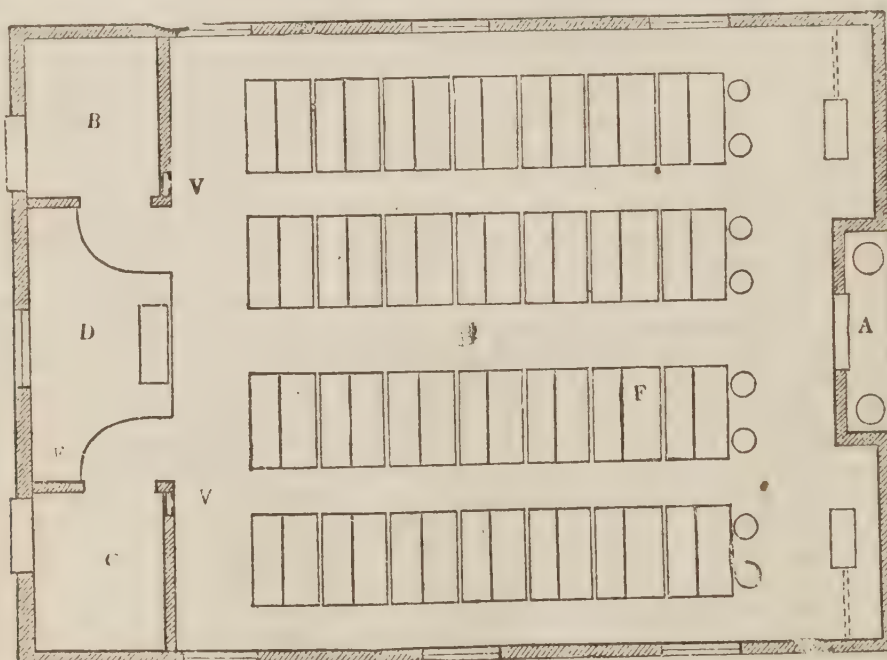
SCHOOL ARCHITECTURE.

We promised in one of our numbers of last year, to present our readers with engravings of a School House suitable to the wants of country school sections. Through some misunderstanding the cuts were not sent us as we had expected, and we were therefore unable to fulfil our promise. The Chief Superintendent of Schools has allowed us the use of two of the cuts which are given in this number. The plan of seats is supplied by our own engraver.

Under the new School Law it is probable that a large number of school houses will be erected

every year in Canada for some time to come. It is of the first importance that a proper plan should be adopted, not only for the credit of the neighborhood, but the health and convenience of the children, and the relief and comfort of the teachers.

The above is the perspective view of a School House, which may frequently be seen in New England. It is plain, and yet attractive, neat and convenient. The building is 40 feet long by 25 wide, and 12 feet high in the clear. The School room is calculated to accomodate 64 pupils with seats and desks, each for two pupils.

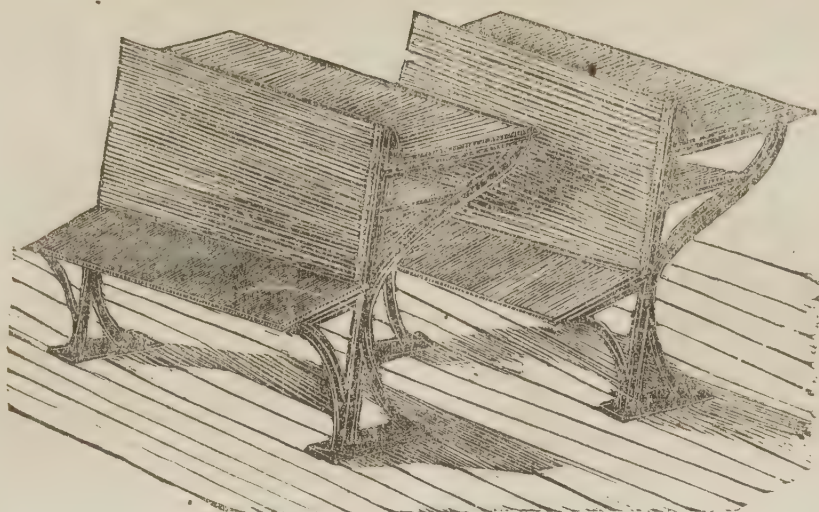


A—Front entrance.
B—Girls' entrance.
C—Boys' do.
D—Teacher's platform.
E—Library.

S—Ventilating stove.
V—Flue for ventilation.
F—Seat and desk, with iron ends. See cut below.

The above is the ground plan showing the interior arrangements. We regard the arrange-

ment of the seats as a most important matter in fitting up a School House. Badly constructed seats is the prevailing defect of nearly all Canadian School Houses. We never see small children perched up on "benches," their feet dangling some inches from the floor, and their backs unsupported, without feeling commiseration for



the little sufferers, and regret that parents and school trustees should prove themselves so cruel, or at least so negligent of their children's health and comfort.

The above is a good plan for seats. Each pupil when properly seated can rest his feet on

the floor without the muscles of the thigh pressing unduly upon the front edge of the seat, and with a support to the muscles of the back. The end pieces in the cut are of cast iron, but in this country, wood could be cheaply substituted.

EDUCATION OF THE HEART.

It is the vice of the age to substitute learning for wisdom—to educate the head, and forget there is a more important education necessary for the heart. The reason is cultivated at an age when nature does not furnish the elements necessary to a successful cultivation of it; and the child is solicited to reflection, when it is only capable of sensation and emotion. In infancy the attention and the memory are only excited strongly by the senses, and move the heart; and the father may instil more solid and available instructions in an hour spent in the fields, where wisdom and goodness are exemplified, seen and felt, than in a month spent in the study, where they are expounded in stilted aphorisms.

No physician doubts that precocious children, in fifty cases for one, are much the worse for the discipline they have undergone. The mind seems to have been stained, and the foundation for insanity is laid.

When the studies of maturer years are stuffed into the head of a child, people do not reflect on the anatomical fact, that the brain of an infant is not the brain of a man; that the one is confirmed; and can bear exertions; the other is growing, and requires repose; that to force the attention to abstract facts; to load the memory with chronological and historical or scientific detail; in short, to expect a child's brain to bear with impunity the exertions of a man's, is as irrational as would be to hazard the same sort of experiment on its muscles.

The first eight or ten years of life should be devoted to the education of the heart—to the formation of principles, rather than to the acquirement of what is usually termed knowledge. Nature herself points out such a course for the emotions as are the liveliest and most easily moulded; being as yet unalloyed by passion. It

is from this source that the mass of men are hereafter to show their sum of happiness or misery. The actions of the immense majority are, under all circumstances determined much more by feeling than reflection; in truth, life presents an happiness that we should feel rightly; very few instances occur where it is necessary that we should think profoundly.

Up to the seventh year of life, very great changes are going on in the structure of the brain, and demand, therefore, the utmost attention, not to interrupt them by improper or over-excitement. Just that degree of exercise should be given to the brain at this period that is necessary to its health; and the best is moral instruction, exemplified by objects which strike the senses.

It is perhaps unnecessary to add that at this period of life special attention should be given, both by parents and teachers, to the physical development of the child. Pure air and exercise are indispensable; and, wherever they are withheld, the consequences will be certain to extend themselves over the whole future life. The seeds of protracted and hopeless suffering have; in innumerable instances been sown in the constitution of the child; simply through ignorance of this great fundamental physical law; and, the time has come when the united voices of those innocent victims should ascend, "trumpet-tongued," to the ears of every parent and every teacher in the land. Give us fresh air and wholesome exercise; leave our expanding energies to be developed in accordance with the laws of our being, and full scope for the elastic and bounding impulses of our young blood.—*Quarterly Review*.

It is computed, in a New York paper, that the value of the coal mined, during the year just closed, in the United States, is thirty-five millions of dollars.

SCIENTIFIC.

MR. RUTTAN'S REPLY TO "CARBONIC ACID."

To the Editor of the Canadian Agriculturist.

SIR:—Your correspondent, "*Carbonic Acid*," thinks, no doubt, that there is wit in the signature he has adopted, and irony in the strictures which he has made upon my communication, in your November number, on the subject of Ventilation. "Swimming and stilts,"—precisely so; and I strongly recommend your correspondent, if he does not happen to be supplied with pretty long legs, whilst inhabiting his "hot-air" heated house, to procure stilts, upon the same principle that, if he should be an inhabitant of the "Grotto del Cane," and should breathe from the same stratum of air in which his dog breathed, he would be very apt to share the same fate. And so long as we follow the noxious and vicious practice of having cellars, and cellar-kitchens under our houses, *without a proper system of ventilation*, we shall live in precisely the same filthy and dangerous state as if all our cellars were "grottos del Canes," differing in degree only.

With respect to his assumption of a fictitious signature, "*Carbonic Acid*" must recollect that if this device gives him the advantage of attacking me in the dark, it accords to me, by all the rules of warfare, the privilege of not caring to be over fastidious, as to where, or how, or whom I strike, in my defence; and should I give him an unlucky *poke*, he is bound to take it with all meekness and humility.

Being a plain, practical man, and unwilling to occupy your valuable space unnecessarily, by intruding at large, upon a discussion of the strict definitions of scientific terms, even were I capable of doing so, your correspondent will excuse me if I at once return to the matter in issue between us.

"*Carbonic Acid*" controverts my assertion, that his name-sake is the cause of disease in families who inhabit dwellings, heated by the "hot-air" machinery, at present in use. He does not, indeed, deny in so many words, that the air taken into these furnaces, from the cellars, and from the surface of the ground, is injurious to health, when heated and forced up into the rooms, but the whole of his argument amounts to this; and, especially, does he deny that there is more carbonic acid gas in these localities than in any other, or in the upper or higher strata of the atmosphere. I cannot stand to carp about *words* or names. I have said that it is the carbonic acid gas which causes the illness which we invariably see in such dwellings—as, being heavier than the other constituents of the common air, it is found in larger quantities, at certain times, near the surface of the earth, than in the higher strata.—All this "*Carbonic Acid*" denies, and this I believe is the issue between us.

If I am in error as to the *name* of the substance, I am perfectly willing, being no chemist myself,

to stand corrected; but my position is not at all thereby affected. It is enough, so far as regards your correspondent's whole argument and strictures, that I prove that it is *something*—that it is *malaria of some kind*, whose nature keeps it, at certain times and under peculiar circumstances, near the surface of the earth; and is invariably found, more or less, in "wells, caverns, mines, between joists, and other places uninfluenced by the motion of the atmosphere." If this deleterious matter be not carbonic acid, I think I now have a right to demand from your correspondent its real name and properties.

I had stated that the usual practice was to take the air from the cellar, but that in some instances it was taken from the surface of the ground, outside of the house; and this latter practice I denounced as "little better than the other." "*Carbonic Acid*" denies that either of these practices is injurious; and in support of his position, urges his "Law of the diffusion of gases,"—and with singular consistency he roundly avers, in the same breath, that "there is a *larger* quantity of carbonic acid in the upper regions of the atmosphere!" Now, I submit that, by his own shewing, this great "law" of his amounts to nothing; for, certainly, it is no more unreasonable to suppose, that if this "law" is not sufficiently universal and powerful to prevent "a larger quantity" accumulating "in the *upper* regions," it *might* be just as powerless in preventing its accumulation at "the surface of the earth!" So that, unless my logic is at fault, my friend has proved too much.

But let us see how far my view is borne out by evidence. In Chambers' Chemistry it is said,—*"In most buildings the supply of air (for ventilation) is taken too frequently from the most indifferent sources, the higher the source from which the air is taken, the better it is in general.*—Great care, however, must be taken not to lead it from the same level as that of chimney tops in the vicinity." From the same authority I quote: "In old wells and pits it (carbonic acid gas) is often so abundant that certain death ensues when any one incautiously visits those in which it is *accumulated*." Again, "offensive gases, such as are found *at the surface of the earth, have also been considered to produce diseases of various kinds*." Having thus far proved my case, let us see what *effects* this "hot air" has upon the families of many intelligent men, who force this material up into every room in their dwellings." W. S. Inman, F. I. B. A., says:—"Most hot air stoves produce an excess of carbonic acid; hence the dry, unpleasant feeling in rooms thus heated; for asthmatic or consumptive persons, it increases their sufferings dreadfully."

As to the attempt by "*Carbonic Acid*" to bolster up his character by his assertion, that he "does not believe that his poisonous qualities are so very extraordinary, &c." Charles Hood, F. R. S., says: "Sir Humphrey Davy, Dr. Christison, Dr. Reid and Dr. Paris, think that it (carbonic acid gas) acts as a strong narcotic poison." I think this quite sufficient to blast Mr. Carbonic Acid's reputation as an agent in the subject under consideration, forever.

But, nothing daunted, your correspondent denies that carbonic acid is heavier than the common air, or which amounts to the same thing, he asserts, that by this great "Law of the diffusion of gases," "it goes up," and the lighter air "comes down," and ridicules the idea, in his "stilts and swimming" paragraph, that this constituent of the atmosphere is at times found so dense as to be capable "of being poured out of a tumbler."—Mr. Tredgold gives the weight of a cubic foot of air in grains, (specific gravity being 10.000) to be 527.0—of carbonic acid gas, 803.8. Mr. Pilkington says: "Carbonic acid gas is nearly twice as heavy as atmospheric air, and it may therefore be poured from one vessel into another, or retained in a cask and drawn off like other liquors."

Being ignorant of chemistry myself, I beg to turn Mr. *Carbonic Acid* over to these gentlemen. It is true that in these times of the rapid advancement of science, there is no knowing what new discoveries your correspondent may have made. He may have some new light far ahead of these old fashioned gentlemen; for a man who has discovered that there is a "larger quantity of carbonic acid in the upper regions of the atmosphere, and about high mountains, which is brought down by the winds," than in the lower regions,—and that too in the face of his own "law of the diffusion of gases,"—can discover any thing!

Now, with respect to this great "law of the diffusion of gases," I believe every school-boy knows that the common atmosphere is made up of nothing else; but the real question, here, is, not whether these constituents will become mixed and diffused, so as to form what we call air, but whether they will, under peculiar circumstances, separate and, to a great extent, remain so; and also, whether, being separate, they will, under peculiar circumstances, remain so. If your correspondent means any thing by his argument, it must be that they will not. I want no stronger argument that they will, than the instances to which he himself alluded, viz.,—the "Grotto del Cane" in Italy, and the "Valley of Death" in Java. Both of these places are perfectly open and exposed to the whole atmosphere, yet no "diffusion" takes place; for, whilst in the former, a man breathing from strata, five or six feet above the ground remains unharmed, his dog almost instantly expires; and in the latter, men walk over the plains with impunity, whilst they are whitened by the bones of animals which have perished in accidentally running across them.

We all know, as a matter of fact, that this destructive gas, is *accumulated*,—not in all cases generated,—in wells, pits and caverns, in injurious quantities; and why not, pray, in walls, pits or caverns, which we call cellars? And if it would endanger the health of families to have this atmosphere in the Grotto del Cane, or on the surface of the ground, in the Valley of Death, forced up by our hot-air machines into their dwellings erected over them, why may it not be injurious in the case of our common cellars?

From your correspondent's assertion, that this destructive gas, at Carlsbad and the Rhine provinces, "is given out from the earth," and that it

is "exhaled" from the "bottom of wells," &c., he leaves it to be inferred that it is never found, in "injurious quantities," except whilst it is in transitu from the earth to the "upper regions," where, he says, it is found in "larger quantities" than near the surface of the earth. This I deny.

The proofs that a deadly malaria sweeps over and covers the ground, especially in calm weather and at night, are so abundant, that the difficulty is to select and confine them within such compass as will not weary you or your readers. Mr. William Hosking, architect, and C. E., observes, (speaking of ventilation,) that "air may thus be drawn from a foul quarter, as in the case of a church surrounded by a burying-ground, &c."—*Chambers' Chemistry*:—"It (carbonic acid) is found during fermentation and putrefaction, and accumulates in old wells, pits and caverns, &c." It "*accumulates*," he says, in these places. I have said nothing more. And being thus accumulated, it is "forced up into every apartment of the dwelling by our hot-air machines." But, says further, the same authority: "Carbonic acid is found in air in every part of the globe, which has an important influence in numerous changes *at the surface of the earth*." The italics both here and elsewhere are mine.

But I will not encumber your columns in a work so clearly of supererogation. If "*Carbonic Acid*" does not know that the air at the surface of the earth is less pure than in the "upper regions," and, in fact, that the principal causes of disease are the miasmatic substances arising from the decomposition of animal and vegetable matter, undisturbed by winds, everybody else does; and this brings me to the consideration of his last assertion, worthy of notice, which, as it is short, I will give in his own words: "It is scarcely necessary to state that the assumption of cholera, consumption, scrofula and elephantiasis, being caused by exposure to carbonic acid alone, is unfounded,—in fact as are many of the statements to which I have alluded." Charles Hood, F. R. S., in his work on the ventilation of buildings, says: "The subject of ventilation has now, however, attracted more public attention; and we may therefore hope that the important means of improving the public health will henceforth be more fully considered; and that the time may come when architects will consider it as great a defect to neglect providing the means for admission and discharge of the air required for ventilation, as they would to omit the doors and windows of the buildings they are called upon to design and erect. The vast importance of ventilation was most forcibly demonstrated by the evidence taken before the Committee of the House of Commons, on the health of towns. *Scrofulous diseases are stated by the medical witnesses to be the result of bad ventilation*; and that in the case of silk weavers, who pass their lives in a more close and confined air than almost any other class of persons, *their children are frequently subject to scrofula* and softening of the bones. Most of the witnesses stated that *a deterioration of the race, undoubtedly occurs among those classes most exposed to bad ventilation*; and they consider that bad air deadens both the bodily and mental ener-

gies. The statements of some of the diseases produced by bad air, is absolutely sickening; and presents the consequences of violating the physical laws in a point of view which will scarcely find a parallel."

Consumption is but another variety (if I may be allowed to use my own word) of scrofula and elephantiasis;—they are all produced by the same cause,—contamination of the blood; only the one class is by transpiration *outward*, toward the skin; the other *inward*, to the lungs.

I have now only to show the probability of the correctness of my "opinion," "that this gas is the immediate cause of cholera," by referring to the facts stated in my former communication, which, it will be recollected, indicated that carbonic acid was invariably found in precisely the same sort of atmosphere in which I have proved, by the "most eminent physicians examined before a Committee of the House of Commons," the other diseases mentioned, were produced.

If this controversy was upon any less important subject, it might be a matter of doubt, as to whether I should enter the list with any anonymous writer; but this matter is of too much consequence to the public to permit me for one moment to allow any consideration of a personal kind to have weight against the correction of erroneous views, come from what quarter they may; and, therefore, in the words of my antagonist, I feel bound to "assist in a small degree that most important object of periodical literature—the promulgation of correct knowledge." And especially is it necessary when we see hundreds and thousands of heads of families, who are daily doomed to disease and death, their immortal offspring, merely from want of this "correct knowledge." Not that it is not offered to them, but because it is too much trouble to think for themselves, and they allow such men as "Carbonic Acid" to lull them to sleep by such puerile advice as "kicking out stoves, stuffing up windows, placing American ventilators near the ceiling," &c.

The truth is, that books, are too often taken for brains, and instead of using them for the purpose of facilitating the operations of the mind upon enquiries into the practical operations of every-day life, and maturing the judgment, by which alone errors are corrected and truth substituted, they are too often allowed to usurp and occupy the whole ground, whence alone originality of thought can be expected.

"Carbonic Acid" is no doubt a practical chemist, what we term a learned man; for so nicely does he weigh and define the constituents of the atmosphere, that his fractioned niceties are perfectly astounding,—6 2-100ths, 3 7-100ths, 4 15-100ths, 34-100ths, and so on, to the 1-10,100th part of a grain! Now, I advise my friend, when he comes to discuss any matter connected with the practical carrying out of the physical sciences to our every day purposes, to throw away his books, and manfully appeal to his own judgment and his every-day experience. And in order to help him out of the thralldom, in which I see he is held by his books, I must, Mr. Editor, crave your

further indulgence for a single extract, and then I have done. "It has been remarked that the salubrity and healthy state of the air depends, in a great measure upon the quantity of oxygen gas it contains, and the quantity appears to exist in *all places exposed to a free atmosphere, and the influence of winds*. But the same uniformity does not prevail in the confined air of dwelling-houses, crowded theatres and hospitals, that are badly ventilated." Mr. Tredgold, referring to these remarks, says:—"Yet the chemist who wrote this remark was not able to detect an appreciable difference between the air of an hospital and that of an open situation; and the same thing is averred by other chemists. Seguin tried the air of an hospital, the odour of which was disagreeable, but it gave him the same result as the external air. The researches of Priestly, DeMarti, Gay Lussac and others, all tend to establish the same result; which is, that the composition of the atmosphere is essentially the same everywhere.—If you allow these experiments to be correct, they only prove that a deadly poison may be diffused through the atmosphere which the art of the chemist cannot detect, but of which we have better evidence"—(hear the practical man) "than is given by the nicest tests of the analytical chemist, in the pale visages and weakly constitution of the inhabitants of confined and crowded cities;—in the inhabitants of particular districts, and in the important alteration which a change of residence often produces in individuals unaccustomed to such changes."

Now, Sir, I think I have *proved* against this mere *assertion* of your correspondent, that there is deadly malaria and miasm of some kind, by whatever name called by chemists, (if indeed they know any thing more about it than I do,) which, from whatever cause, floats near the surface of the earth; and that it is the cause of disease, especially of cutaneous diseases and consumption; and, having in my former communication shewn that these diseases, as a general rule, prevail in precisely the same localities in which cholera has most prevailed, I submit that the inference is a perfectly logical and reasonable one, that this latter disease originates in the same cause. This, then, being the case, am I not correct in my conclusion, that the ventilating air should be taken from the higher strata, your correspondent's assertion to the contrary, notwithstanding?

The farming population are, now that fuel is becoming scarce, even in country places, and very dear in our cities, building hundreds and thousands of new houses, and for economy's sake adopting the stove, and, what is infinitely worse, the hot-air systems; and if I can shew them that they can put up a dwelling without any additional expense, which will insure, at all times a healthy atmosphere within its walls; and this too with additional warmth in cold weather, and a great saving of fuel, I think I can fairly claim to have accomplished what no other man has.

In any thing I have said, I am unwilling to be understood as feeling opposed to the discussion of this subject; on the contrary I court it and feel

obliged to your correspondent for having assisted in drawing public attention to this matter, than which none can be of greater importance generally, but especially to the inhabitants of the colder parts of North America.

Thanking you for the use of your columns, and complimenting you,—which I may fairly do,—upon the great improvement in the *Canadian Agriculturist*.

I remain yours, much obliged,

H. RUTTAN.

COBOURG, January 28, 1852.

ORIGIN OF SPONGE AND FLINT.

Professor Rymer Jones commenced a course of lectures before the members of the Literary and Philosophical Society, at the Music Hall. The lecturer said, his object was to elucidate the contents of the museum—to give some notion of the power, the might, the majesty of the Creator. It was of no consequence where they began the great study. To-night their lecture led them to the bottom of the ocean. Here they found the vast manufactory of nature—a machinery to create new worlds as our own earth was constructed. The progress was quiet, gentle, persevering. He took first the sponge. When alive it was covered with a film of oil—a substance like the white of eggs. The sponge itself was horny, elastic, resilient. It was building, remodelling the world, the film of jelly deriving from the water the substances of its structure. Whether it was animal or vegetable it was difficult to decide. The flint was once a sponge. Examined by the microscope in thin laminae, it was found to contain the fibres of the sponge, and countless millions of the shells of animalculæ, which were drawn into the sponge while living, and lodged there when dead. The flint was found in the chalk only, and the tall chalk cliffs were formed in the bottom of the sea. They contained layer after layer of flints, laid as regularly as the bricks in a wall, indicating the series that had been gradually superposed. Paley said that if a man found a stone on the ground, for aught he knew it might have lain there for ever. But he knew not a stone, except the brick made by man, or the volcanic stone, in which all traces of organization were extirpated, that did not speak trumpet-tongued of its origin. The chalk contained tens of thousands of indications of beings that had perished. When the chalk was formed, the water was no less heavy than now; the waves roared as now, and the existing things at the bottom of the sea were ground to powder by the pounding waves, and these heaped up layer upon layer formed the strata of chalk. The sponges overwhelmed in these layers became flints. But the sponge, before it died, spouted out the germs of new sponges. The lecturer went on to speak of the construction of marble rocks, of corals, of limestone rocks, &c. This film of jelly had formed islands in the sea, made land where all was water, and rescued solid ground from the ocean. And this was the work of globules of jelly almost invisible to the human eye. In conclusion, the lecturer referred to the volcanic agency by which the strata formed in the course of ages in the bed of the ocean have been upheaved so as to form our tall cliffs and chains of mountains.—*Sheffield Independent*.

LAND AND LABOUR.—It is the grossest fallacy to suppose, that the land-owner can be prosperous, while manufactures decline. Lands, as fertile as those of

England, now lie desolate, not by the course of nature, but because there are no populous cities in their vicinity to render their cultivation profitable.—*Ibid*.

COAL AND CIVILIZATION.

Coal was undoubtedly known to Theophrastus and Pliny, and from a very early period amongst the Britons. Nevertheless, for long after it was but little valued or appreciated, turf and wood being the common articles of consumption throughout the country. About the middle of the ninth century, a grant of land was made by the Abbey of Peterboro', under the restriction of certain payments in kind to the monastery, among which are specified sixty carts of wood, and as showing their comparative worth, only twelve carts of pit coal. Towards the end of the thirteenth century, Newcastle is said to have traded in the article, and by a charter of Henry III, of date 1284, a license is granted to the burgesses to dig for the mineral. About this period, coals, for the first time, began to be imported into London, but were made use of only by smiths, brewers, dyers, and other artizans, when, in consequence of the smoke being regarded as very injurious to the public health, parliament petitioned the king, Edward I. to prohibit the burning of coal, on the ground of being an intolerable nuisance. A proclamation was granted, conformable to the prayer of the petition; and the most severe inquisitorial measures were adopted to restrict or altogether abolish the use of the combustible, by fine, imprisonment, and destruction of the furnaces and workshops! They were again brought into common use in the time of Charles I. and have continued to increase steadily with the extension of the arts and manufactures, and the advancing tide of population, till now, in the metropolis and suburbs, coals are annually consumed to the amount of about three millions of tons. The use of coal in Scotland seems to be connected with the rise of the monasteries, institutions which were admirably suited to the times the conservators of learning, and pioneers of art and industry all over Europe, and in whose most rigorous exactions evidences can always be traced of a judicious and enlightened concern for the general improvement of the country. Under the regime of monastic rule at Dunfermline, coals were worked in the year 1291—at Dysart, and other places along the coast, about half a century later—and, generally, in the fourteenth and fifteenth centuries, the inhabitants were assessed in coals to churches and chapels, which, after the Reformation, have still continued to be paid in many parishes. Boethius records that in his time, the inhabitants of Fife and the Lothians dug "a black stone" which, when kindled, gave out a heat sufficient to melt iron. How long will the coal-mines of the British Isles last at the present, or even an increased expenditure of fuel? So great has been the discrepancy, and so little understood the data on which to form a calculation, that the authorities variously estimate from two hundred to two thousand years. For home consumption the present rate is about thirty-two millions of tons annually. The export is about six millions: and yet such is the enormous mass of this combustible enclosed in one field alone, that no boundary can be fixed, even the most remote, for its exhaustion. The coal trade of Great Britain is nearly in proportion of three to two of that of all the other nations of the world; while in superficial area her coal measures are to those of the United States only as 11,859 square miles to 133,132 square miles. What a vision of the future is hereby disclosed! If rightly employed, if the arts and progressive development of society at all keep pace with the means provided, the human race in the New

World have a destiny to run, and a work of civilization to accomplish, to which the Old in its brightest achievements can furnish but a faint analogy. Scarcely two centuries have elapsed since coal was employed as an article of domestic use, or introduced upon the most limited scale into the manufactures; its now ascertained extent and boundless latent powers were not dreamt of or imagined even but half a century ago; and very recently the lamentation was general, that no coal measures existed in the mighty continent of America. Who now can fancy a limit to the social movement with which that vast hemisphere is heaving all over—the advancing tide of its population spreading in every region—the forests cleared and covered with a network of railways, the rivers bridged from end to end with a navy of steamships—and all vivified and in motion through the agency of this long undiscovered product of the earth? Geological time rolled on, and the surface of our planet was replenished with the hidden treasure and the man of science has no numbers to reckon the years that are past.—*The Course of Creation*, by Dr. Anderson.

WOOD FOR FUEL.

The high price of fire-wood in many of our cities is becoming most sensible to the feelings and pockets of a very large class of the inhabitants; and the return of an old genuine Canadian winter like the present, is well calculated to awaken attention to the important matter of economizing fuel. There is evinced by many people, a negligence in this respect, which it is difficult to account for, upon any principles of common sense. How large a proportion of the fire-wood for which there is now paid a large price, is either green or more or less saturated with moisture, and not uncommonly in an advanced state of decomposition. Now much of this evil admits of an easy remedy, viz:—a little reasonable forethought and attention. Firewood, like hay, should be preserved in as dry a state as possible; and any outlay incurred in erecting suitable woodsheds and laying in a timely and ample stock against winter will be abundantly compensated, in the economy and increased comfort thereby secured. The following observations from the *Scientific American*, on this subject, cannot fail to be interesting and useful to our readers:

“Three cords of green or partly seasoned wood will not warm a room for as great a length of time as one cord well-dried, and entirely free from moisture. The rationale is simple, and although to be found in books, is nevertheless true; it may be thus understood:

Substances contain heat as latent in proportion to their bulk. Thus if we pour a cubic inch of alcohol on our head and fan it, the one cubic inch assumes the form of vapour and becomes 1,700 cubic inches, capable of receiving a proportionate amount of heat, and therefore takes heat, from the nearest hot object, the head, causing it to keep cool. Water placed on the head and then rapidly evaporated, will cool the head from the same cause. It may now be understood that a single pint of water contained in a piece of wood thrown on the fire, will first become 1,700 pints of vapor, and that this vapor, will increase in size one-five-hundredth part of its bulk for every degree added, so that it travels up the chimney, carrying

with it as much heat as would warm all the air in a large room for a considerable space of time.

Many suppose that green wood may be burned in stoves with profit. This is an error, for the vapor will pass up the pipe carrying with it the heat, and preventing its being received by the iron and radiated into the room.”

MAGNETISM.—Most extraordinary and inexplicable discoveries have been made, and are making, as experiments irrefragably prove, in regard to magnetism. They have been performed in Brighton, to the entire conviction of persons of the highest science, both foreigners and British—and yet altogether so incredible, that we almost fear to allude to them as realities. They will, however, come before the Royal Society at its earliest re-assembling, and be stated in all their details. Meanwhile, what will our readers, and especially our scientific readers, think of the fact, that the magnetic force runs in transverse directions as it may be employed by the male or female sex; that is to say, that if in the hands of a male operator it proceeded from west to east, the same current in the hands of a female operator would immediately change to form north to south, or south to north, and cut the former line at about right angles. Thus magnetism is shown to derive different influences from the two sexes! But this is not all. A letter written by a woman weeks before, produces an effect upon the current of a like peculiar nature. And again any part of a dead animal, as the horn of a deer, a bit of ivory, and a dead fly held in the hand of any individual in contact, stops the magnetic action, which silk, the material from living worms, does not interrupt. In fine, there are wonders the most astonishing in store, and it does seem that we are, indeed, on the eve of what has for some time been prophesied, viz: penetrating deeply into the profoundest secrets and mysteries of this pervading agent in the whole economy of the universe, the globe we inhabit, and the human kind.—*London Paper*.

THE SUPPLY OF CARBON.—Carbonic acid is everywhere unceasingly generated, and especially in those regions of the earth where volcanoes are active, or probably were active in a former age. It is generated at the Grotto del Cane, near Naples, at Pymont, in Westphalia, and in the neighbourhood of the Lake of Laache, &c, and it oozes in a constant current from various crevices in different parts of the earth, and in all ordinary combustions. In the respiration of men and animals, as may easily be proved by blowing the air coming from the lungs through a glass tube into lime water, carbonate of lime is formed, which renders the clear liquid turbid. It is also generated in the fermentation which occurs in the making of wine, beer, and brandy. In this process the sugar is resolved into alcohol and carbonic acid; the former remains in the liquor, and imparts to it an intoxicating power, while the carbonic acid escapes in the air. It is produced by the decay and putrefaction of all animal and vegetable substances. Carbon is also contained in all organic bodies: during decay it is converted gradually by the oxygen of the air into carbonic acid; hence, wherever plants and animals exist, whether upon the earth, in the sea, or in the air, carbonic acid must be formed. All the carbonic acid thus formed is received into the air. If it should continue there, however, the air would become gradually deteriorated, more especially as in all the processes of breathing, combustion, and decay, free oxygen, or vital air, is taken from it. But this is not the case. The oxygen does not decrease, the carbonic acid does not increase. An unfathomable

wisdom has appointed the vegetable kingdom as the protector of animal life, and with wonderful simplicity has provided that plants should absorb from the air, as their principal means of support, the carbonic acid exhaled as useless by men and animals, and should yield oxygen to them in return.

MISCELLANY.

SPEAK NO ILL.

Nay speak no ill: a kindly word
Can never leave a sting behind;
And, oh! to breathe each talk we've heard,
Is far beneath a noble mind.
Full oft a better seed is sown,
By choosing thus the kinder plan;
For if but little good be known,
Still let us speak the best we can.

Give me the heart that fain would hide—
Would fain another's faults efface.
How can it pleasure human pride
To prove humanity but base?
No; let us reach a higher mood—
A nobler estimate of man;
Be earnest in the search for good,
And speak of all the best we can.

Then speak no ill—but lenient be
To others' failings as your own;
If you're the first a fault to see,
Be not the first to make it known.
For life is but a passing day,
No lip may tell how brief its span;
Then oh! the little time we stay,
Let's speak of all the best we can.

CANINE INTELLIGENCE.

The race of turnspits is almost extinct, as their services have been superseded by machinery, but in some places this has not been of long date. These dogs knew the roasting day most distinctly. At the Jesuits' college at Fleeche, the cook took one of these dogs out of its turn to put it into the wheel of the spit; but the animal giving him a severe bite ran away, and drove from the yard the dog whose turn it really was. Arago describes something similar: he saw several dogs at an inn, whose duty it was to turn the spit in regular rotation, one of which skulked away, and obstinately refused to work, because its turn had not come round, but went willingly enough into the wheel after its comrade had turned a few minutes. A dog, which was in the habit of accompanying its master from Paris to Charenton, where he spent the Sunday with a friend, having been locked up on two successive occasions, ran off alone to Charenton on the Saturday evening, and waited there for its master. A gentleman writing from Edinburgh, and speaking of the Scotch shepherd's dog, describes it as one of the most intelligent of the canine family, as a constant attendant on his master, and never leaving him except in the performance of his duty. In some districts of Scotland these animals always accompany them to church; some of them

are even more regular attendants than their masters, for, by an extraordinary computation of time, they never fail resorting thither, unless employed in attending their charge. To a stranger, their appearance is somewhat remarkable in such a spot, and the propriety with which they conduct themselves during the service, is remarkably singular. On one occasion, towards its close, one of the dogs showed an anxiety to get away, when his master, for this unmannerly conduct, very unceremoniously gave him a kick, which caused him to howl, and break the peace of the assembly, and, to add to his distress, some of his fellow-dogs attacked him, as dogs are wont to do, when they hear one of their species howl. The quarrel became so alarming that the precentor was forced to leave his seat, and use his authority in restoring peace, which was done by means of a few kicks. All the time of this disturbance the minister seemed very little discomfited, continuing his preaching without intermission, which showed that such occurrences were not rare. In one parish great complaints were made against the disturbances occasioned during divine service by the quarrelling and otherwise unmannerly conduct of the dogs, when it was agreed that all those who had dogs should confine them, and not allow them to come to church. This did very well for the first Sunday or so; but the dogs not at all relishing to be locked up on a day when they were wont to enjoy themselves, were never to be found on the Sunday morning to be tied up: they by some instinct knew the Sunday as well as their masters, and set off before them, whither they had been in the habit of going on that day. It was now evident to the members of the congregation that this plan would not do, and another scheme was laid before them, which was, to erect a house close to the church in which they might be confined during divine service. This was adopted, and a kennel was accordingly built, in which the dogs were imprisoned; but the animals, being more accustomed to freedom than to confinement, took this restraint upon their liberty in ill part, and set up a most dreadful howling, to the great annoyance of the people in the church. They, however, persevered in confining them for a considerable time, thinking the animals would get accustomed to their incarceration; but in this they were mistaken, for instead of the howling diminishing, it got worse and worse. So it was agreed they should again be set at liberty, and have freedom of access to the place of public worship; but their manners had been so corrupted that they were with difficulty brought even to their former discipline.—*The Passions of Animals*, by E. P. Thompson.

CAUTION.—At an inquest held in London, the other day, it was proved that a child lost its life in consequence of having its head covered over with the bed clothes whilst sleeping with its parents. Mr. Wakley, the Coroner, said that "human breath was a most deadly poison, and even a man could as effectually kill himself by covering his head with the bed-clothes, and breathing over and over again the same air, as he might by taking prussic acid. In children, death was very easily caused by these means, especially when there was any bronchital affection."—*English Paper*.

POWER OF THE PEOPLE.—Much as a wise government may do, and it ought to do the very utmost that it can, there is no government, whether conservative, reforming, or radical, which can do the hundredth part of what the people can and must do for themselves, if they are to bear up against inevitable burdens, and recover permanent prosperity.—*Edinburgh Review*.

BATHS IN PRIVATE DWELLINGS.—Throughout the vast empire of Russia, through all Finland, Lapland, Sweden, and Norway, there is no cottage so poor, no hut so destitute, but it possesses its vapour bath, in which all its inhabitants every Saturday at least, and every day in cases of sickness, experience comfort and salubrity. It is true with us, now, the first-rate buildings generally have attached to them a private bath; but the use of them amongst the middle class is not so general as might be. In America a bath room is a part of every modern dwelling, and no one will occupy a house without one; the bath itself being provided with hot water from a peculiar and ingenious kind of cooking stove, somewhat like those used in the houses of our nobility, but on a more economical plan. In the suburban districts of London the houses generally erected have not these conveniences supplied, but it is owing to the bad management of the speculating builders; to supply these deficiencies is a moral duty they owe to all. Builders themselves must bear in mind that, during the progress of the building, a bath room might be built at half the cost, when the materials and labour are there on the spot; and that after a house is finished few are willing to incur such an additional trouble and expense. If cement were less used for external effect, which, even in the hands of a skilful architect, is rarely treated successfully, that additional expense would be saved, and the conveniences internally might be more generally attended to; and the saving in this respect might be employed for the erection of a bath room.—*Builder.*

HOW TO GET RID OF COCKROACHES.—Mr. Tewkesbury, of Nottingham, in a letter to the *Manx Sun*, says:—"I forward an easy, clean, and certain method of eradicating these insects from dwelling houses. A few years ago my house was infested with cockroaches (or 'clocks,' as they are called here,) and I was recommended to try cucumber peelings as a remedy. I accordingly, immediately before bedtime, strewed the floor of those parts of the house most infested with the vermin with the green peel, cut not very thin from the cucumber, and sat up half an hour later than usual to watch the effect. Before the expiration of that time the floor where the peel lay was completely covered with cockroaches, so much so, that the vegetable could not be seen, so voraciously were they engaged in sucking the poisonous moisture from it. I adopted the same plan the following night, but my visitors were not near so numerous—I should think not more than a fourth of the previous night. On the third night I did not discover one; but anxious to ascertain whether the house was quite clear of them, I examined the peel after I had laid it down about half an hour, and perceived that it was covered with myriads of minute cockroaches about the size of a flea. I therefore allowed the peel to lie till morning, and from that moment I have not seen a cockroach in the house. It is a very old building; and I am certain that the above remedy only requires to be persevered in for three or four nights, to completely eradicate the pest. Of course it should be fresh cucumber peel every night.—*Builder.*

PROPERTY IN GREAT BRITAIN.—The Committee of the House of Commons, in their report on the law of partnership, which has, with the evidence, just been printed, state that in round numbers, in thirty-three years since the peace, whilst lands in Great Britain have increased only 8,500,000 in annual value, or a little more than 5 per cent., messuages (being chiefly houses and manufactories and warehouses in and near towns, and inhabited by persons depending greatly on trade and commerce) have augmented

above £26,000,000 in annual value, or about 30 per cent., in the same period. The value of railways, gas works, and other property chiefly held in shares as personal property, had increased about twelvefold in the period.

A CASE OF CONSCIENCE.—A Christian who found himself in want of money, wished to borrow money from a heathen, and gave him a pledge for it. He drew up a note in the form desired by the heathen, in which he bound himself by a heathen oath to repay the money lent in a given time. But he considered himself as not bound by his word, because he regarded an oath taken in the name of the gods as a nullity, and thought himself guilty of no idolatry, because he had only written down words dictated to him by another, and because in doing so, he had shown that he regarded an oath taken in the name of the gods as absolutely null and void. It might be, that the Christian at first, when necessity led him to seek for a loan, intended to repay it at the right time; and that he at first justified himself in that sophistical manner only in reference to the acknowledgment of the gods, but afterwards when he could not repay the money, added a second self-deception to the first, when he asserted the nullity of an oath taken in the name of the gods, and then made use of this assertion, in order to clear his conscience from the charge of taking a part in the worship of the gods. Tertullian lays open the sophistry of this twofold self-deception. He says that when one person writes what another dictates to him, as if it proceeded from himself, he thereby makes it his own, equally whether he expresses his sentiments by word of mouth or in writing.—*Neander's Planting of Christianity: Bohn's Standard Library.*

TENACITY OF LIFE IN THE POLYPI.—Among the lower animals this faculty is the more remarkable in the polypi: they may be pounded into a mortar, split up, turned inside out like a glove, and divided into parts, without injury to life; fire alone is fatal to them. It is now about a hundred years since Trembley made us acquainted with these animals, and first discovered their indestructibility. It has subsequently been taken up by other natural historians, who have followed up these experiments, and have even gone so far as to produce monsters by grafting. If they be turned inside out, they attempt to replace themselves, and if unsuccessfully, the outer surface assumes the properties, and powers of the inner, and the reverse. If the effort be partially successfully only, the part turned back disappears in twenty-four hours in that part of the body it embraces, in such a manner that the arms which projected behind, are now fixed in the centre of the body; the original opening also disappears, and in the room of feelers a new mouth is formed, to which new feelers attach themselves; and this new mouth feeds immediately. The healed extremity elongates itself into a tail, of which the animal has now two. If two polypi be passed into another like tubes, and pierced through with a bristle, the inner one works its way through the other, and comes forth again in a few days; in some instances, however, they grow together, and then a double row of feelers surround the mouth. If they be mutilated, the divided parts grow together again, and even pieces of two separate individuals will unite into one.—*Thomson's Passions of Animals.*

THE EAR OF ANIMALS.—Among mammalia the formation the ear varies in very many cases, according to the habits and peculiar nature of the animal. The portion of the ear of the mole assigned for the cognizance of sounds passing in the air, is less perfect than those which, deeper seated, receive the impression of any

sound or vibration proceeding from the earth. The beaver has the power, when diving, to fold its ears backwards on its head; and the water-shrew, for the same purpose, has three distinct flaps, which close the orifice, in the same manner that any diving or burrowing animals are furnished with flaps to the nose, by which they close the entrance to all injurious bodies.

The hippopotamus, which remains for lengthened periods beneath the surface of the water, is also provided with a valve-like apparatus.—Hares and rabbits, which squat close on the ground, and which might be more readily discovered where any projecting point of their bodies to be visible, fold their ears flat backwards. In all, this sense is remarkably keen; and with horses it is only exceeded by that of the smell; they hear sounds and are restless long before the rider can perceive an animal or a human being in the distance.—The carrier-horses in Switzerland hear the fall of an avalanche, and warn masters of danger by their terror, and by refusing to advance, and even by turning in an opposite direction. The acute sensibility of this organ is somewhat obstructed by the bushy hairs which grow in the outer sheath; and thus horse-dealers cut them out from horses they have for sale, in order that sounds, striking on the nerves with greater force, may, by exciting the animals, give them a more lively appearance. The flight of the bat, like that of the owl, is perfectly noiseless; and its ear equally acute, detects the slightest humming of an insect, at a distance of several feet, and while it catches such as are in flight, it touches none which have settled or are silent.—*Ibid.*

HABITS OF INSECTS.—The assertion is altogether groundless that insects experience no sensations of pain, although transfixed with a pin, around which even a slight deposit of verdigris collects, and left till they perish from hunger; for, although in all probability they do not suffer pain during the latter period, there is no doubt but they feel acutely at the moment of the transfixion. It is only necessary to watch the effect when a needle is thrust through the back of an insect, and it will be obvious that it makes many powerful and convulsive movements, indicative of pain, and not of struggle for escape. Butterflies, pierced with a common pin exhibit these symptoms, and the spasms are repeated if a heated pin be afterwards introduced. But still, as said before, much depends on the perfection of the organization; and, besides, the formation of insects is so peculiar to themselves, that we have no parallel in any of the other classes. Some of the animals in the class Vermin may be cut and divided *ad infinitum*, and each part will eventually become a perfect animal. Some insects without this reproductive power will bear dividing, and still continue to live, and perform most of the various functions with which they are endowed. The common dragon-fly (*Libellula varia*) will live for days without its head; and if, instead of the head, the abdomen be taken away, the animal seems to feel no material injury.—This insect is of a most voracious nature, and has been known to feed under the following extraordinary circumstances. A gentleman being engaged in collecting insects, caught a specimen of the common dragon-fly, which he fastened down in his collecting box, with a large pin thrust through its thorax; when, to his astonishment, he observed the dragon-fly hold in its forceps a fly, which was still struggling for liberty. This it soon devoured, without exhibiting any signs of pain, seeming wholly unconscious of its own unpleasant situation, being still secured by the pin before named to a piece of cork. When the fly was devoured the insect began to flutter, and made several attempts to regain its liberty. The gentleman, greatly surprised at this incident, and willing to improve the experiment still further, caught another fly, which he offered to it.

This was eagerly seized by the rapacious insect, and devoured with greediness; and when its meal was finished, it began to flutter again as before. It certainly is not derogating from the benevolence so conspicuous in all the works of Providence, to conceive it probable that it has, with infinite wisdom, withheld from some of the lower classes of animals, that degree of sensation so abundantly dispensed to others filling the higher ranks of creation, as, from the habits necessarily entailed upon them, they are more likely to encounter accidents that tend to mutilate, than other individuals of higher powers of sensation.—*Ibid.*

SAGACITY OF THE DONKEY.—The ass is always esteemed the stupidest of animals, yet if one be shut up in the same enclosure with half-a-dozen horses of the finest blood, and the party escape, it is infallibly the poor donkey that has led the way. It is he alone that penetrates the secret of the bolt and latch; and he may be often seen snuffing over a piece of work, to which all other animals are incompetent.—*Thomson's Passions of Animals.*

RECIPES.

TO MILK COWS.—A cow should be milked *clean*. Not a drop, if it can be avoided, should be left in the udder. It has been proved that the half-pint that comes out *last*, has *twelve times*, I think it is, as much butter in it as the half-pint that comes out *first*. The udder would seem to be a sort of milk-pan in which the cream is uppermost, and, of course, comes out last, seeing that the outlet is at the bottom. But, besides this, if you do not milk clean, the cow will give less and less milk, and will become dry much sooner than she ought.—*COBBETT.*

THINGS TO BE FOUND OUT.—Nature is not exhausted. Within her fertile bosom there may be thousands of substances yet unknown, as precious as the only recently found gutta percha. To doubt this, would be to repudiate the most logical inference afforded by the whole history of the earth. Corn and the grape excepted, nearly all our staples in vegetable food are of comparatively modern discovery. Society had a long existence without tea, coffee, cotton, cocoa, sugar and potatoes. Who shall say there is not a more nutritious plant than the sugar-cane, a finer root than the potato, a more useful tree than the cotton. Buried wealth lies everywhere in the bowels of the earth, which needs but the true divining rod of organized action for its discovery.—*ATHENÆUM.*

ECONOMY IN CANDLES.—If you are without a rush-light, and would burn a candle all night, unless you use the following precaution it is ten to one an ordinary candle will gutter away in an hour or two, sometimes to the endangering the safety of the house. This may be avoided by placing as much common salt, finely powdered, as will reach from the tallow to the bottom of the black part of the wick of a partly-burnt candle, when, if the same be lit, it will burn very slowly, yielding a sufficient light for a bed-chamber; the salt will gradually sink as the tallow is consumed, the melted tallow being drawn through the salt, and consumed in the wick.—*Family Economist.*

TEA CAKES.—Take, of white flour, two pounds; bi-carbonate of soda, quarter of an ounce; sugar, two ounces; butter, two ounces; sour buttermilk, twenty ounces, or one pint. Rub the soda, sugar, and butter well into the flour, and mix with the buttermilk; roll out and make into cakes of any convenient size, and bake in a moderate oven twenty minutes.

RECIPES.

BUTTERMILK.—It is not generally known that buttermilk can be used for many purposes in domestic affairs; and in consequence it is often thrown away or given to pigs. New buttermilk, as a drink, is cooling and moist, the best remedy for a hot thirsty stomach, good for hoarseness, excellent in consumptions and fevers, and also for constipation of the bowels. When stale and sour, it may be used in combination with bi-carbonate of soda for the making of bread, pastry, &c. The bread, buns and rolls made with it are excellent, keeping moist and good much longer than those made with yeast.

SCOTCH BUNS.—Take, of white flour, two pounds; bi-carbonate of soda, two drachms; salt, quarter of an ounce; sour buttermilk, one pint or twenty ounces. Mix and bake the same as for tea-cakes.

COMPOSITION FOR RESTORING SCORCHED LINEN.—It sometimes happens that linen is scorched from either being placed too near the fire to air, or from being ironed with an iron too much heated. There has hitherto been no remedy offered to restore the colour of the linen when the action of the fire has only browned it, without destroying the tissue. It is almost needless to add that if the tissue of linen is so much burnt that no strength is left, it is useless to apply this composition; for nothing could prevent a hole from being formed, although the composition would by no means tend to hasten that consummation. But if the scorching is not quite through, and the threads not actually consumed, then the application of this composition, followed by two or three good washings, will restore the linen to its pristine colour; the marks of the scorching will be so totally effaced as to be imperceptible, and the place will seem as white and as perfect as any other part of the linen.

Mix well together two ounces of fuller's earth reduced to powder, one ounce of hen's dung, half an ounce of cake soap scraped, and the juice of two large onions, obtained by the onions being cut up, beaten in a mortar and pressed. Boil this mass in half a pint of strong vinegar, stirring it from time to time, until it form a thick liquid compound. Spread this composition thickly over the entire surface of the scorched part, and let it remain on twenty-four hours. If the scorching was slight, this will prove sufficient, with the assistance of two subsequent washings, to eradicate the stain. If, however, the scorching was strong, a second coating of the composition should be put on after removing the first; and this should also remain on for twenty-four hours. If, after the linen has been washed twice or thrice, the stains have not wholly disappeared, the composition may be used again, in proportion to the intensity of the discolouration remaining, when a complete cure will seldom fail to be effected. It has scarcely ever happened that a third application was found necessary. The remainder of the composition should be kept for use in a gallipot tied over with bladder.—*Hand Book of the Laundry.*

LEICESTERSHIRE PORK PIES.—To thirteen pounds of meat, add half-a-pound of salt, two ounces of white pepper, and as much cayenne as will lie upon a shilling. For the above quantity of meat, you will require nine pounds of flour for the crust; to which add two and a-half pounds of lard, three pints of water, and a little salt. The above will make eight good sized pies. The lard should be boiled in the water, and poured in that state upon the flour, well kneaded, and made into raised pies while warm. Bake about three hours in a moderately heated baker's oven.

APPOINTMENT.

The *Canada Gazette* of the 31st ult. contains the following:—

SECRETARY'S OFFICE, }
QUEBEC, Jan. 31st, 1852. }

His Excellency The GOVERNOR GENERAL has been pleased to appoint GEORGE BUCKLAND, Esquire, to be Professor of Agriculture in the University of Toronto.

MARKETS.

It would appear that the British markets have at length reached the lowest point of the scale of diminished prices, and we may reasonably look forward to a progressive rise, although the day of high prices is no doubt gone for ever. The latest advices from Europe indicate an upward tendency in most kinds of grain, and we hope our farmers will yet receive more remunerating prices than we at one time anticipated. Rye and potatoes have in a great measure failed in several parts of continental Europe, and the exports to England are consequently diminishing. The grain crops of 1851, in the British Islands, have proved upon the whole abundant, and potatoes were in a sounder condition than for several years past. The weather, although rather severe at the commencement of winter, had become dry and mild; sheep were doing well on pasture, and roots and hay abundant and cheap. Butcher's meat is selling at somewhat improved rates. The winter in Canada has been by far one of the severest experienced for a great many years.

TO CORRESPONDENTS.

INQUIRER, Thorold.—Your communication in our next, with the best answers we can give.

A NORTHUMBERLAND FARMER'S communication received—with thanks.

ARTESIAN WELLS. The information requested by a subscriber we hope to be able to give in our next.

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VOL. IV.

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NO. 3.

AN ESSAY ON AGRICULTURE.

BY E. W. THOMSON, TOWNSHIP OF YORK,
CHAIRMAN OF THE BOARD OF AGRICULTURE, TO WHICH
A DIPLOMA WAS AWARDED BY THE DIRECTORS OF THE
AGRICULTURAL ASSOCIATION OF UPPER CANADA.

Agriculture is doubtless one of the oldest, most honorable and important pursuits among civilized nations. Without it the food of man must have been limited to the flesh of wild animals, and the spontaneous productions of the earth. Commerce could not exist to any extent; the arts and sciences would be almost unknown; and society could not advance in improvement beyond a state of comparative barbarism. But the culture of the soil enables men to produce more of the necessary food than they require, so that a part only of the inhabitants of a country are required in this pursuit, while the remainder are enabled to turn their talents and ingenuity to other useful callings—the products of which are given to the agriculturist in exchange for food.

This is the origin of the division of labor, which is at the foundation of all political economy, and true governmental policy. This division and sub-division of labor is adopted more extensively the more a nation becomes enlightened and prosperous. Without such distribution of pursuits, little wealth could be accumulated by nations or individuals. In order that every man should be independent of the services of all others, he must manufacture and produce everything with his own hands, which in a social and civilized state of society he receives from them. This would so occupy his time and talents, that he could only produce the bare necessities of a primitive state of life; his food must be obtained by hunting, fishing and digging roots,—his clothing, the skins of animal; his shelter, a rude hut; and his only beverage—Water.

From this mode of living also, the earth must soon contain more inhabitants than could subsist

on its spontaneous food, and part must, therefore, die of starvation.

Agriculture became one of the sustaining arts of life as soon as man was ordained to earn his bread by the sweat of his brow. In the Garden of Eden, whose fertile soil and genial climate, appear to have combined in maturing a continual variety and unfailing succession of vegetable sustenance, agricultural operations were unknown, for that which came spontaneously to perfection required no assistance from human ingenuity; and where there is no deficiency, there can be no inducement to strive for improvement. That period of perfection, however, was but transitory; and the Deity who had placed man in the garden to dress it and keep it, eventually drove him thence,—to till the earth from whence he was taken. From that time to the present Agriculture has been an improving art, and there is no reason to doubt, but that it will go on advancing as mankind continued to increase.

Man in his greatest state of ignorance is always found dependant for sustenance upon the produce of the chase; but as their number increase in proportion to the extent of territory they occupy, it becomes necessary to resort to other means in order to secure the necessities of life: and although flocks and herds will produce the means of subsistence, yet it becomes essential to resort to improved modes of husbandry, in order to produce the necessary food for those flocks and herds; and man in a state of civilization soon resorts to a different mode of living; for while he finds it incumbent upon him to provide for the sustenance of his cattle, he also finds that a portion of the produce of the soil is necessary for his own comfortable subsistence.

Thus circumstanced, experience and observation soon teach the importance of employing manures, the proper time to commit the seed to the soil, and other necessary operations; and in northern climates where art and industry have to compensate for deficiency of natural advantages, increase of numbers induces increased ex-

ertion, and more accurate observation. Mankind, it has been truly said, seem to thrive and civilize in proportion as they multiply, and by a recurrent action multiply as they thrive, civilize and prosper. Thus necessity compels to invention and stimulates to improved modes of cultivation, the introduction of new species and of more fruitful varieties of agricultural produce, in order to keep pace with increasing population; thus resting upon a basis of facts, vindicates the wisdom of Providence, and refutes the superficial theory of over production.

It is under a combination of these circumstances that the agricultural produce of England has increased from the insignificant amount that was its value at the time of the Norman invasion, to the enormous annual amount of £200,000,000! And it is certain that in this country and in other parts of the world, the produce is a small portion of what the soil is capable of producing, under a thorough system of cultivation. Agriculture is the art of obtaining from the earth food for the sustenance of man and his domestic animals; and the perfection of that art is to obtain the greatest possible produce at the smallest possible expense.

Upon the importance of this art it is needless to insist, for by it every country is enabled to support in comfort an abundant population; on this its strength as a nation depends, and by it its independence is secured. An agricultural country has within itself the necessities and comforts of life, and to defend its rights and independence there will never be wanting bands of patriot soldiers.

Of the delights that the cultivation of the soil is capable of producing, facts in abundance exist in the devotion with which many of the most eminently gifted men have applied themselves to it, and the delight we all experience on beholding a highly cultivated piece of land; a proof of the infinite wisdom, that has so ordered the events of this life, as to make the most devoted attention to what is useful the highest source of rational enjoyment.

Let us then endeavor to make some enquiry into the best method of bringing about the results to which we have alluded, and what procedure is most conducive to that end. At the early settlement of any section of this country, the soil, abounding in vegetable mould, required early the attention necessary to keep under the luxuriant growth of noxious weeds, to secure an abundant return to the husbandman, of almost any crop he properly put in the ground; but from too rank a growth the wheat crop is liable to lodge and rust. This, for several years, has been almost the only drawback the new settler experiences, if he is careful to provide himself

with clean seed and sows in proper season. But as the absorption of vegetables and other organic matters contained in the soil is constantly going on by cropping, some means must be resorted to that these fertilizing principles may be supplied, in order that the productiveness of the soil may be maintained; and it is fortunate for us Canadians that we have it in our power to avail ourselves of the experience of those countries, whose practice has taught those engaged in the cultivation of the soil, what is the proper course to pursue that this important result may be produced. One of the first requisites is a knowledge of the deficiency of the soil, and what is proper to apply in order to supply that deficiency. Every farmer of experience knows that barn yard manure is the best possible fertilizer, and that its benefits are alike perceptible on all soils, for this simple reason, that it returns to the soil that of which it was necessarily exhausted, in order to produce the material of which the barn-yard manure is composed. But as the necessary quantity of this valuable material cannot always be had, scientific men have been led to give their special attention to the discovery of substitutes, and while no author worthy of attention, has ever recommended an abandonment of the produce of the stable and barn-yard, they have written much to show how the quantity and quality of the material may be increased, and what may be used with advantage as substitutes; and some of those are extremely valuable, because of their cheapness in transportation and application. It will also be discovered when we turn our attention to the subject, that there are sources from which valuable manures may be procured, that have as yet, in this country, been entirely neglected.

Nothing has been discovered more beneficial than a judicious rotation of crops. Clover and turnips are said to be the two main pillars of British Husbandry, they have contributed more to preserve and augment the fertility of the soil, for producing grain, to enlarge and improve breeds of cattle, and sheep, and to produce a supply for the butcher's stall all the year round, than any other crops. Mangold Wurtzel, the Belgian Carrot, and Parsnips, are all highly valuable for the same purpose, and when fed in a proper manner, contribute largely to increase the quantity and quality of the manure heap, and most valuable as preparatory crops for the production of grain, as every farmer of experience well knows; and when a supply of milk and fresh butter is an object during the winter or early spring, (and who will deny that it is a comfort to have them), then roots, if we except the turnip, must be invaluable. Much might be said on this subject, but as the limits of this essay will not permit of details be-

ing given, I refer my brother farmers to the many valuable articles given in our agricultural periodicals on the subject.

I will now proceed to the consideration of a question that has been too little attended to by Canadian Farmers. I mean the proper construction and arrangement of farm buildings, with a view of adding to the comfort and consequently to the profit of their stock, and also the saving of the manure. This subject of itself would furnish matter for an essay of moderate length; I shall therefore merely state, that in the construction of farm buildings, the first thing to be regarded is the convenience of their situation, and to this end must be considered the best means of shelter, feeding, and watering of live stock; the carriage of crop and manure, and the preservation of the produce. The object of the Farmer ought to be to *combine* as many of these advantages as possible. But in a special manner ought he to pay attention to the construction of Drains and Tanks, for the collection and preservation of liquid manure, the value of which is not generally understood or regarded. A most able and comprehensive description of the various kinds of manures will be found in the American Farmers Encyclopædia, under that head. And well worthy the attention of every farmer is a work recently published by M. M. Rogers, entitled Scientific Agriculture, in which the following passage occurs:—

“The urine of men and animals, is the most valuable and the most neglected of all manures, that of the cow, and the hog, is said to be more valuable because it contains more solid soluble matter than that of any other domestic animal. The efficiency of urine as a manure is due to the large quantity of urea ammonia, and phosphates, and consequently of Nitrogen which it contains; recent urine generally exerts an unfavorable influence on growing vegetation, it is most beneficially applied after fermentation has fairly commenced and before it reaches the final stage of the process.”

The following calculation has been made relative to the value of this article in a city containing a population of 30,000 inhabitants, with a proportionate number of animals. If we allow the quantity of urine voided by each individual, to be 600 pounds yearly, such a city would furnish 1,200,000 lbs., or 540 tons; this estimated at the price of guano would be worth \$21,000! Now if we estimate the horses and cows at 500 each, and that each animal voids as much urine as two persons, the amount would be 80,000 pounds or 40 tons, which would be worth \$1,600. Here then is a loss, if we reckon guano at \$40 per ton, of \$23,200; or manure enough

to produce in the ordinary crop of wheat over 16,000 bushels in a single year. These calculations may not be minutely correct, but they are sufficient to show that this manure is very valuable, and might be made a source of profit to every Farmer; hence the necessity of his constructing his farm-buildings with a view to its preservation.

The cow-house should be a spacious, well-lighted and well-ventilated building, in which the cows or oxen may be kept dry, clean, and moderately warm, a temperature of about 60° is perhaps the best. It is a mistaken idea that cattle suffer materially from dry cold; it is the wet and damp walls, yard, and driving rains and snows of winter, that are so injurious to them. The Dutch Farmers are very particular, they have their cows regularly groomed, and the walks behind them sprinkled with sand, a clean and dry bed, a portion of a trough to give them water, and another portion for their oil cake or mangold or turnips, and a rack for their dry food, with all the necessary comforts therewith, such as regular feeding, a lump of rock salt in the manger, and occasional variations, if possible, in the food; these are the chief points to be attended to in the stall management of cattle. (A. F. C.) And here let me remark that although the general improvement of our cattle may, and doubtless will, be facilitated by the importation of fine animals, yet much, very much can be done, by a judicious selection from those we have; and by adopting such a thorough system of keeping and feeding, as will bring our young animals to early maturity and develop their valuable points; and by always selecting the best to breed from, by observing the deficiencies and defects, and crossing with a view to the remedying of such defects.

It was by adopting and steadily pursuing this judicious course, that the celebrated breeder Collins, and others, were enabled to bring their animals to such a degree of perfection, and to realize from their sale such largely renumerating prices.

No more mistaken idea can be entertained by a farmer than to suppose he is gaining when he withholds the trifling expense necessary to provide comfortable accommodation, and abundance of nutritious food his cattle. Such mistaken ideas are to be placed on a par with his, who withholds the manure from his land because he dreads the expense of applying it, and in consequence reaps half a crop.

Another very important subject that deserves prominent attention is *Draining*; which it is thought by many should be the very first care of Farmer, as being that on which the success of the his subsequent operations very materially de-

pend. The removal of unnecessary supplies of water, whether arising from the tenacity of the surface soil retaining too much water, or from springs exuding to the surface, is unquestionably necessary; and was thorough drainage more extensively practised in this country, it would be found immensely beneficial. In England and Scotland it is very generally practised with the most favorable results.

Extensive tracts in Great Britain and Ireland that were formerly perfectly useless have by thorough drainage been, within a few years past, brought into profitable tillage. Such would no doubt be the result in Canada; and large tracts that now produce nothing but mosquitos and fevers, might be the most fertile lands in the country. But as the subject cannot be fully discussed here, I recommend attention to the article on draining in the American Farmer's Encyclopedia, where will be found a correct description of the most approved methods adopted in Great Britain and Ireland.

Professor Johnston in his Address before the New York State Agricultural Society says;—"Amongst the greatest of those practical improvements in the treatment of the land, by means of which British Agriculture has been advanced to its present condition may be mentioned, a judicious rotation of crops. In this work Flanders was probably earliest among modern European countries to make decided and important advances. The introduction of thorough drainage to a certain extent and in a certain way, under diains have been made in almost every country in Europe, and are at least as old as the time of the Romans. But the necessity and almost universal profit of the system, as it is now understood and practiced was first demonstrated in Scotland, and owes its general introduction to Mr. Smith, of Deanston.

"As the accompaniment of thorough draining, we have the introduction of deep and sub-soil ploughing. These practices have renovated shallow, worn-out soils, by bringing up new materials; have opened a passage for the roots to descend deeper in search of food; and have provided a more ready outlet for the surface water into the drains below."

The same author also refers to the judicious application of lime, the use of bone dust, the extensive culture of green crops, the making of home, and the purchasing of various kinds of manures, and to a great extent the rearing and fattening of improved breeds of stock, for the conversion of one form of produce into another, which meets with a more steady market, or is otherwise more profitable; the principles of nutrition and feeding, both for plants and animals, from early youth to full maturity, the introduc-

tion of improved implements—these are what are termed "High Farming;" and such are generally the practical methods by which British husbandry has been advanced to its present condition, and by similar processes we, in Canada, arrive at the same results; and we should not cease to strive until we have improved our natural advantages to the fullest extent of which they are capable.

But the most important element to secure the prosperity of the Farmer, it should ever be borne in mind, is a thorough, careful, and painstaking attention to every minutiae of his business; that every branch thereof be attended to in its proper season, that there be no clashing, or wasteful expenditure in any part of his work. Fences good, and lawfully repaired, when necessary. Gates and buildings should be in good repair; he must sow under proper conditions in Spring and cultivate well in Summer, if he would reap an abundant harvest in Autumn. If he desires comfort and independence, he must take care that there is no recklessness or neglect of anything. Tools must be kept in order and in their proper places, that they may always be ready for use when required. With proper attention to such matters, and with a cheerful, ready-handed industry, his life will be one of rational enjoyment, and he will have the satisfaction of aiding in an eminent degree, in placing his country on a substantial basis. For a highly improved state of Agriculture must be the means of exalting a nation and of contributing to its enduring happiness and prosperity. On this foundation must all other classes build their prosperity; mechanics, traders, and commerce must flourish or decline, as this first and greatest of occupations advances or recedes.

We live in an age of the world when we have reason to be thankful; an age in which the best energies of the human mind are turned to the study of the most effectual means of advancing the science and art of Agriculture; and the chemical experiments and investigations that have occupied the minds of eminently learned men, have opened a wide field for investigation, which we have reason to hope will not be left unoccupied by the youth of our country, under the enlightened system of Common School Education, (to say nothing of our higher institutions of learning) that now pervades the land. And although every farmer cannot be a chemist, nor is it necessary he should, yet there are many special points that might be enumerated, in regard to which Chemistry may be said to have been, or is capable of becoming of obvious money value to the farmer. Examples are not wanting that clearly indicate the kind of connection which exists between practical agriculture and practical chemistry, and the use to which scien-

tific knowledge may be put in advancing this important art, which it is the object of Agricultural Associations, and the individual interest of us all, to promote.

But in bringing to our aid all our mental and bodily powers, and illustrating what is already in the power of man and what he hopes to accomplish, in reference to agriculture, by the application of all the practical and scientific knowledge he can bring to his aid, he should not forget to acknowledge how very limited his power is and how futile his capacity after all, and how much he is dependant upon the over-ruling power of Him who permits a mysterious fungus to attack the potato plant, and for years spread famine, misery, and discontent, amongst millions of industrious tillers of the soil! A diminutive fly, season after season, is seen to hover over our fields and proves utterly destructive to the wheat crop! Disease and death may come amongst our flocks and herds, and they are swept away! Such things as these ought to prevent us from boasting of our attainments and enforce upon us piety and humbleness of spirit, which the occupation of the farmer is peculiarly calculated to inspire and foster; while at the same time they should not restrain us from any and every inquiry by which they may be removed or mitigated.

All such enquiries and investigations increase the knowledge and admiration of the contemplative farmer, and teach him to view with wonder and admiration the many inscrutable ways of providence, and to adopt the language of one who was well qualified to judge on subjects of this nature, who has said:—

“No pursuit has such a variety of interests, nor can any business or profession vie with it in happiness or independence; the intelligent farmer has every day some fresh incident, some new progress to observe; the advance of his crops, the condition of his stock, and the result of his experiments, and his life is passed in the midst of all that should make it agreeable; its attractions are felt by the highest, and it is a profession that never degrades. No profession or occupation can in these respects compare with it, and without affording large profits, it begins by giving much that large profits and years of labor end with.”

NOTICE.

A Meeting of the Board of Agriculture will be held in the City of Toronto, pursuant to adjournment, on Tuesday, the 20th of April, 1852, at 10 o'clock, A. M.

(By order)

G. BUCKLAND, Sec.

TORONTO, Feb. 26, 1852.

The Agriculturist.

TORONTO, MARCH, 1852.

CANADIAN PROGRESSION.

Much has been said and written of late on the necessity and advantages of providing a more suitable course of instruction for the rising generation of the farming community; and accordingly the establishment of Agricultural Colleges, with experimental farms attached, has been urgently recommended, and in several European countries actually commenced, with results, so far, that must be regarded, on the whole, as satisfactory and encouraging. Anterior to experience there could scarcely exist a doubt in any well informed mind tolerably acquainted with the wants and condition of the Agricultural classes, of the beneficial tendency of such an instrumentality. From the fruits already produced in the old world, the question of Agricultural education has of late been warmly espoused in the new; and great exertions are now being made in more than one State of the neighboring Republic, for the founding of Agricultural Colleges, in a great measure, at the public expense; although at present, we believe, no such institution has been commenced in any part of the Union. For some time past an effort has been made by several patriotic and far-seeing men, to establish an Agricultural Bureau at Washington, under the superintendence of a Minister of Agriculture, similar to what exists in France, and other European countries. This valuable addition, however, to the United States Government, has, as yet, been but imperfectly accomplished; but of its ultimate, and, perhaps, speedy triumph, in such a country, and among a progressive and intelligent people, there cannot exist the shadow of a doubt.

It has been a too common mistake committed by writers and tourists, who seldom take but a hurried view of the country bordering on the north of the great lakes, to look upon the British American Provinces as being a long way behind the United States, in social and industrial progress. That we formerly labored under some physical disadvantages in the way of navigation

ready means of transport, must be acknowledged; but most of these difficulties have already been removed, and when, after an auspicious commencement, our projected net-work of Railways is completed, connecting the most westerly portions of these Provinces with the Atlantic, British-America, by means of her immense lakes and rivers, will in respect to the great question of easy and cheap intercommunication, be equal, if not superior, to any other portion of the world!

There is a vast deal of popular ignorance on this subject on both sides of the lakes, as well as the Atlantic. We believe that Canada, at least, will favorably compare in healthy growth, and agricultural skill and improvement, with any section of the States. The position which the Agricultural art—the origin and precursor of all others,—occupies in the estimation of the Legislature and the public mind, is higher in Canada than in any State of the American Union, at the present moment. We make this remark in no boastful spirit, and with a consciousness that the aggregate resources of this country,—agricultural even,—as well as manufacturing, and mining, have, as yet, only here and there been touched. To show, however, that our present agricultural position is by no means a low one, and that the future is full of hope and promise, we need only remind the reader of the following facts.

The Canadian Legislature makes a liberal grant annually, for the improvement of agriculture and the mechanical arts, through the agency of Societies, which now exist in every County, and in very many of the Townships, throughout the Province. A Board of Agriculture has recently been brought into operation, and a Professorship of Agriculture established in the University of Toronto, with an experimental farm attached; and similar agencies are being introduced in Lower Canada, which also presents a wide and promising field for diligent and enlightened culture. The Normal School in Upper Canada recognizes the claims of Agriculture, by making its principles a prominent part of its prescribed course of study, and in a short time, as soon as a sufficient number of competent teachers have been trained, more or less of the principles of this invaluable art will be taught in every

common school throughout the country. And now, since our last issue, Government have created a new Department in the State—presided over by a MINISTER OF AGRICULTURE!—thus honoring the calling of the farmer, which is as noble as it is indispensable, with a prominent position in the Councils of the Sovereign. These things we regard as encouraging signs of the times, and indicate for this young country a progressive improvement, whose limits are not easily definable,—full of hope and promise.

We have much pleasure in calling the attention of the reader, in connexion with the above remarks, to the following admirable article from the *Horticulturist*, for January. We had previously marked these very portions of Major Patrick's address for insertion; and, as the introduction is written in Mr. Downing's usually felicitous style, and abounds in salutary admonitions, always seasonable, and too little understood or appreciated, we think that we shall be doing good service to the cause of moral and intellectual, as well as agricultural improvement; to rural taste and enjoyment, as well as domestic refinement and happiness; by making room for the whole. Seldom has any thing come under our notice better calculated to foster the progressive spirit of a higher and Christian civilization among the rural population. But few there are who adequately appreciate the moral power and elevating influences of a neat and well ordered Home,—where the proprieties of domestic life are observed and respected; the intellect and the heart improved by occasional retirement for study and meditation; and the natural affinities of the social and domestic affections, strengthened and brought into play by the mutual exchange of kind offices and attentions. This class of enjoyments can be but slightly affected, under free institutions, by the acts of the Government, or by mere outward organizations; for they are the legitimate effects of the healthy exercise by *individuals*, of an enlightened and virtuous *free will*, in accordance with that truly wonderful, beneficent, and unalterable system of laws,—natural and moral,—originating in divine wisdom, and sustained and directed by infinite power!

THE HOME EDUCATION OF THE RURAL DISTRICTS.

While the great question of Agricultural Schools is continually urged upon our legislatures, and, as yet, continually put off with fair words, let us see if there is not room for great improvement in another way—for the accomplishment of which the farming community need ask no assistance.

Our thoughts are turned to the subject of *home education*. It is, perhaps, the peculiar misfortune of the United States, that the idea of education is always affixed to something *away* from home. The boarding-school, the academy, the college—it is there alone we suppose it possible to educate the young man or the young woman. *Home* is only a place to eat, drink, and sleep. The parents, for the most part, gladly shuffle off the whole duties and responsibilities of training the heart, and the social nature of their children—believing that if the intellect is properly developed in the schools, the whole man is educated. Hence the miserably one-sided and incomplete character of so many even of our most able and talented men—their heads have been educated, but their social nature almost utterly neglected. Awkward manners and a rude address, are not the only evidences that many a clever lawyer, professional man, or merchant, offers to us continually, that his education has been wholly picked up away from home, or that home was never raised to a level calculated to give instruction. A want of taste for all the more genial and kindly topics of conversation, and a want of relish for refined and innocent social pleasures, mark such a man as an ill-balanced or one-sided man in his inner growth and culture. Such a man is often successful at the bar or in trade, but he is uneasy and out of his element in the social circle, because he misunderstands it and despises it. His only idea of society is display, and he loses more than three-fourths of the delights of life by never having been educated to use his best social qualities—the qualities which teach a man how to love his neighbour as himself, and to throw the sunshine of a cultivated understanding and heart upon the little trifling events and enjoyments of every day life.

If this is true of what may be called the wealthier classes of the community, it is, we are sorry to say, still more true of the agricultural class. The agricultural class is continually complimented by the press and public debaters,—nay, it even compliments itself, with being the “bone and sinew of the country”—the “substantial yeomanry”—the followers of the most natural and “noblest occupation,” &c. &c. But the truth is, that in a country like this, knowledge is not only power; it is also influence and position; and the farmers, as a class, are the least educated, and therefore the least powerful, the least influential, the least respected class in the community.

The state of things is all wrong, and we deplore it—but the way to mend it is not by feeding farmers with compliments, but with plain truths. As a natural consequence of belonging to the least powerful and least influential class, the sons and daughters of farmers—we mean the *smartest* sons and daughters—those who might raise up

and elevate the condition of the whole class, if they would recognize the dignity and value of their calling, and put their talents into it—are no sooner able to look around and choose for themselves, than they bid good bye to farming. It is too *slow* for the boys, and not *genteel* enough for the girls.

All the education of the schools they go to, has nothing to do with making a farmer of a talented boy, or a farmer's wife of a bright and clever girl—but a great deal to do with unmaking them, by pointing out the superior advantages of merchandise, and the “honourable” professions. At home, it is the same thing. The farmer's son and daughter find less of the agreeable and attractive, and more of the hard and sordid at their fire-side, than in the houses of any other class of equal means. This helps to decide them to leave “dull care” to dull spirits, and choose some field of life which has more attractions, as well as more risks, than their own.

We have stated all this frankly, because we believe it to be a false and bad state of things which cannot last. The farming class of America is not a rich class—but neither is it a poor one—while it is an independent class. It may and should wield the largest influence in the state, and it might and should enjoy the most happiness—the happiness belonging to intelligent minds, peaceful homes, a natural and independent position, and high social and moral virtues. We have said much, already, of the special schools which the farmer should have to teach him agriculture as a practical art, so that he might make it compare in profit, and in the daily application of knowledge which it demands, with any other pursuit. But we have said little or nothing of the farmer's *home education* and social influences—though these perhaps lie at the very root of the whole matter.

We are not ignorant of the powerful influence of *woman*, in any question touching the improvement of our social and home education. In fact it is she who holds all the power in this sphere; it is she who really but silently, directs, controls, leads and governs the whole social machine—whether among farmers or others, in this country. To the women of the rural districts—the more intelligent and sensible of the farmer's wives and daughters, we appeal then, for a better understanding and a more correct appreciation of their true position. If they will but study to raise the character of the farmer's social life, the whole matter is accomplished. But this must be done truthfully and earnestly, and with a profound faith in the true nobility and dignity of the farmer's calling. It must not be done by taking for social growth the finery and gloss of mere city customs and observances. It is an improvement that can never come from the atmosphere of boarding schools and colleges as they are now constituted, for boarding schools and colleges pity the farmer's ignorance, and despise him for it. It must, on the contrary, come from an intelligent conviction of the honesty and dignity of rural life; a conviction that as agriculture embraces the sphere of God's most natural and beautiful operations, it is the best calculated, when rightly

understood, to elevate and engage man's faculties; that, as it feeds and sustains the nation, it is the basis of all material wealth; and as it supports all other professions and callings, it is intrinsically the parent and superior of them all. Let the American farmer's wife never cease to teach her sons, that though other callings may be more lucrative, yet there is none so true and so safe as that of the farmer,—let her teach her daughters that, fascinating and brilliant as many other positions appear outwardly, there is none with so much intrinsic satisfaction as the life of a really intelligent proprietor of the soil, and above all, let her show by the spirit of intelligence, order, neatness, taste, and that *beauty of propriety*, which is the highest beauty *in her home*, that she really knows, understands, and enjoys, her position as a wife and mother of a farmer's family—let us have but a few earnest apostles of this kind, and the condition and prosperity of the agricultural class, intellectually and socially, will brighten, as the day brightens after the first few beams of golden light tinge the eastern horizon.

We are glad to see and record such signs of daybreak—in the shape of a recognition of the low social state which we deplore, and a cry for reform—which now and then make themselves heard, here and there, in the country. Major Patrick—a gentleman whom we have not the pleasure of knowing, though we most cordially shake hands with him mentally, has delivered an address before the Jefferson county Agricultural Society, in the state of New York, in which he has touched with no ordinary skill, upon this very topic. The two pictures which follow are as faithful as those of a Dutch master, and we hang them up here, conspicuously, in our columns, as being more worthy of study by our farmers' families, than any pictures that the "Art Union" will distribute this year, among all those that will be scattered from Maine to Missouri.

"An industrious pair, some twenty or thirty years ago, commenced the world with strong hands, stout hearts, robust health, and steady habits. By the blessing of Heaven their industry has been rewarded with plenty, and their labours have been crowned with success. The dense forest has given place to stately orchards of fruits, and fertile fields, and waving meadows, and verdant pastures, covered with evidences of worldly prospect. The log cabin is gone, and in its stead a fair white house, two stories, and a wing with kitchen in the rear, flanked by barns, and cribs, and granaries, and dairy houses.

But take a nearer view. Ha! what means this mighty crop of unmown thistles bordering the road. For what market is that still mightier crop of pigweed, dock and nettles destined, that fills up the space *they call* the "garden?" And look at those wide, unsightly thickets of elm, and sumach, and briars, and choke-cherry, that mark the lines of every fence!

Approach the house, built in the road to be *convenient*, and save land! Two stories and a wing, and every blind shut close as a miser's fist, without a tree, or shrub, or flower to break the air of barrenness and desolation around it. There it stands, white, glaring and ghastly as a

pyramid of bones in the desert. Mount the unfrequented door stone, grown over with vile weeds, and knock till your knuckles are sore. It is a beautiful moonlight October evening; and as you stand upon that stone, a ringing laugh comes from the *rear*, and satisfies you that somebody lives *there*. Pass now around to the rear; but hold your nose when you come within range of the piggery, and have a care that you don't get swamped in the neighbourhood of the sink spout. Enter the kitchen. Ha! here they are all alive, and here they *live* all together. The kitchen is the kitchen, the dining-room, the sitting-room, the room of all work. Here father sits with his hat on and in his shirt sleeves. Around him are his boys and hired men, some with hats and some with coats, and some with neither. The boys are busy shelling corn for samp; the hired men are scraping whipstocks and whittling bow pins, throwing every now and then a sheep's eye and a jest at the girls, who, with their mother, are *doing-up* the house-work. The younger fry are building cob-houses, parching corn, and burning their fingers. Not a book is to be seen, though the winter school has commenced, and the master is going to board there. Privacy is a word of unknown meaning in that family; and if a son or daughter should borrow a book, it would be almost impossible to read it in that room; and on no occasion is the front house opened, except when "company come to spend the afternoon," or when things are brushed and dusted, and "set to rights."

Yet these are as honest, as worthy, and kind-hearted people as you will find anywhere, and are *studying out* some way of getting their younger children into a better position than they themselves occupy. They are in easy circumstances, owe nothing, and have money loaned on bond and mortgage. After much consultation, a son is placed at school that he may be fitted to go into a store, or possibly an office, to study a *profession*; and a daughter is sent away to learn books, and manners, and *gentility*. On this son or daughter, or both, the hard earnings of years are lavished; and they are reared up in the belief that whatever smacks of the country, is vulgar—that the farmer is *necessarily* ill bred, and his calling ignoble.

Now, will any one say that this picture is over-drawn? I think not. But let us see if there is not a ready way to change the whole expression and character of the picture, almost without cost or trouble. I would point out an easier, happier, and more economical way of educating those children, far more thoroughly, while at the same time the minds of the parents are expanded, and they are prepared to enjoy, in the society of their educated children, the fruits of their own early industry.

And first: let the *front* part of that house be thrown open, and the most convenient, agreeable, and pleasant room in it, be selected as the *family room*. Let its doors be ever open, and when the work of the kitchen is completed, let mothers and daughters be found *there*, with their appropriate work. Let it be the room where the family altar is erected, on which the father offers the morning

and the evening sacrifice. Let it be consecrated to Neatness, and Purity, and Truth. Let no *hat* ever be seen in that room on the head of its owner, [unless he be a Quaker friend;] let no *coatless* individual be permitted to enter it. If father's head is bald, (and some there are in that predicament,) his daughter will be proud to see his temples covered by the neat and graceful silken cap that her own hands have fashioned for him. If the coat he wears by day is too heavy for the evening, calicoes are cheap, and so is cotton wadding. A few shillings placed in that daughter's hand, ensures him the most comfortable wrapper in the world; and if his boots are hard, and the nails cut mother's carpet, a bushel of wheat once in three years, will keep him in slippers of the easiest kind. Let the table which has always stood under the looking-glass, *against the wall*, be wheeled into the room, and plenty of useful (not ornamental!) books and periodicals be laid upon it. When evening comes, bring on the lights—and plenty of them—for sons and daughters—all who can—will be most willing students. They will read, they will learn, they will discuss the subjects of their studies with each other; and parents will often be quite as much instructed as their children. The well conducted agricultural journals of our day throw a flood of light upon the *science* and *practice* of agriculture; while such a work as Downing's Landscape Gardening, [or the *Horticulturist*,] laid one year upon that centre table, will show its effects to every passer-by, for with books and studies like these, a purer taste is born, and grows most vigorously.

Pass along that road after five years working of this system in the family, and what a change! The thistles by the roadside enriched the manure heap for a year or two, and then they died. These beautiful maples and those graceful elms, that beautify the grounds around that renovated home, were grubbed from the wide hedge-rows of five years ago; and so were those prolific rows of blackberries and raspberries, and bush cranberries that show so richly in that *neat garden*, yielding abundance of small fruit in their season. The unsightly out-houses are screened from observation by dense masses of foliage; and the many climbing plants that now hang in graceful festoons from tree, and porch, and column, once clambered along that same *hedge row*. From the meadow, from the wood, and from the gurgling stream, many a native wild flower has been transplanted to a genial soil, beneath the homestead's sheltering wing, and yields a daily offering to the household gods, by the hands of those fair priestesses who have now become their ministers. By the planting of a few trees, and shrubs, and flowers, and climbing plants, around that once bare and uninviting house, it has become a tasteful residence, and its money value is more than doubled. A cultivated taste displays itself in a thousand forms, and at every touch of its hand gives beauty and value to property. A judicious taste, so far from plunging its possessor into expense, makes money for him. The *land* on which that *hedge row* grew five years ago, for instance, has produced enough since to *doubly pay* the expense of grubbing it,

and of transferring its fruit briers to the garden, where they have not only supplied the family with berries in their season, but have yielded many a surplus quart, to purchase that long row of red and yellow Antwerps, and English gooseberries; to say nothing of the scions bought with their money, to form new heads for the trees in the old orchard.

These sons and daughters sigh no more for city life, but love with intense affection every foot of ground they tread upon, every tree, and every vine, and every shrub their hands have planted, or their taste has trained. But stronger still do their affections cling to that *family room*, where their minds first began to be developed, and to that centre-table around which they still gather with the shades of evening, to drink in knowledge, and wisdom, and understanding.

The stout farmer, who once looked upon his acres only as a laboratory for transmuting labour into gold, now takes a widely different view of his possessions. His eyes are opened to the *beautiful* in nature, and he looks with reverence upon every giant tenant of the forest, that by good luck escaped his murderous axe in former days. No leafy monarch is now laid low without a stern necessity demands it; but many a vigorous tree is planted in the hope that the children of his children may gather beneath the spreading branches, and talk with pious gratitude of him who planted them. No longer feeling the need of taxing his physical powers to the utmost, his eye takes the place of his hand, when the latter grows weary, and *mind* directs the operations of labour. See him stand and look with delighted admiration at his sons, *his educated sons*, as they take hold of every kind of work, and roll it off with easy motion, but with the power of mind in every stroke.

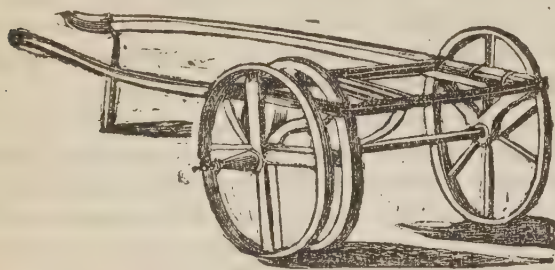
But it is the proud mother who takes the solid comfort, and wonders that it is so easy after all, *when one knows how*, to live at ease, enjoy the society of happy daughters and contented sons, to whom the *city folks* make most respectful bows, and treat with special deference as truly *well-bred ladies and gentlemen*.

Now, this is no more a fancy picture than the other. It is a process that I have watched in many families, and in different states. The results are everywhere alike, because they are natural. The same causes will always produce the same effects, varying circumstances only modifying the intensity."

LAND PRESSER.

The Land Presser, or as it is sometimes called, the Presser Roller, is an exceedingly simple and useful implement, especially on light porous soils. It is used extensively both in England and Scotland, and has in some measure superseded Drills, being about one-eighth the cost of those machines,—infinitely less liable to derangement,—and by pressing the land where the seed

is to be deposited, this roller gives a firmer bottom, into which the roots can penetrate, and it is said to operate very beneficially in retarding, if it does not altogether prevent, the operations of that insidious enemy to the farmer,—the wire-worm. One horse will, with this implement, go over about two acres of land in a day; the soil should be previously well cultivated, leaving the drills closely pressed at any desired distance, for the reception afterwards of the seed.

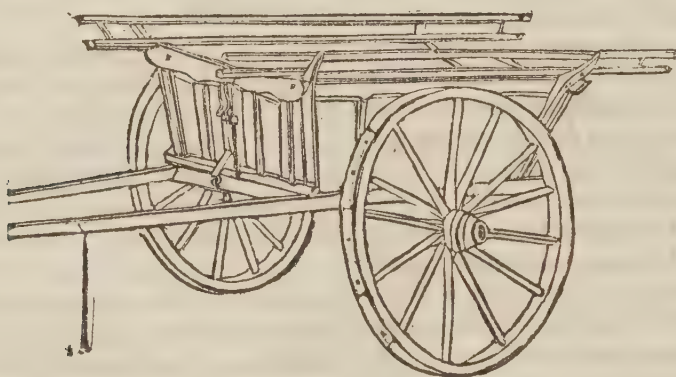


The above cut will give the reader a general notion of this machine, which may be made to vary in size and weight, as may seem desirable. It usually consists of a rectangular frame about $3\frac{1}{2}$ feet long, and about $4\frac{1}{2}$ feet in breadth, with an axle carrying the two heavy pressing-wheels seen on

the right,—made of iron,—with a light wheel attached to the opposite end of the axle, on the left, for the purpose of assisting in turning, &c. The pressing-wheels are about 3 feet diameter, and weigh upwards of 2 cwt. each; their breadth on the rim from 5 to 6 inches, which is sloped off on both sides to an angle of about 70° , leaving a cylindrical band in the middle of about $1\frac{1}{2}$ inches in breadth.

Upon all light, loose soils this implement is found of great use in preparing the land for all descriptions of crops, but more especially wheat, which, in many cases, cannot be otherwise profitably produced. In England the application of the Presser is found exceeding beneficial in preparing even heavy land, recently in 'sod, for wheat; and, as before stated, the ravages of the wire-worm, after such application, are generally much checked.

The price of these Machines in England ranges according to size, from five to seven or eight pounds sterling; some being fitted up with as many as six pressing wheels, which weigh about 12 or 13 cwt., and come to a considerably higher price.



IMPROVED SCOTCH CART.

The above cut represents a farm vehicle that is in very general use in Scotland, and with some slight modifications, in many parts of England. This cart is fitted with wrought iron axles, case hardened, chilled boxes and brass caps. It has an improved cast iron nave, which adds both strength and durability to the wheels; and a frame, or rathes, which is easily put on and taken off, and admirably adapted for carting

grain and hay. The price of this cart, made of the best materials, is from £12 to £15 sterling, and with proper care and ordinary use it will last half a century.

It has now been proved beyond a doubt in many parts of Great Britain that in the ordinary progress of the hay and corn harvest, the use of one horse carts is attended by a considerable saving, both in animal power and manual labor, as compared with the employment of heavy waggons. Mr. Hannam, of Yorkshire,

the intelligent and well known agricultural experimentalist, calculates this saving at 20 per cent. He observes that to move a bulk from one spot to another, in the way that field operations are carried on by a continuous chain of loading at one end and discharging at the other, seldom less than three carts are employed, and that in the usual practice of the Southern Counties, one horse occupies the stand-cart or waggon, and three horses, each of the other two that are in motion; the work thus going forward with seven horses. If two horses in a cart are used, five will be the number engaged; and, if four, the number will be nine. Mr. Hannam then shows, from many years experience on his own farm, that the same amount of work, when at a moderate distance, may be performed by *three horses in separate carts*. The following are the reasons assigned:—1st. A horse thus harnessed draws more in proportion with equal ease. 2nd. The mis-application of his strength in the constant draught of a heavy carriage is prevented. 3rd. He moves more briskly and freely, and turns, &c., with less loss of time, and when any check occurs, the loss is saved that takes place by the hindrance of a large number; and lastly, there is a certain convenience and ready manageableness which can be better felt than calculated or described.

Whether, and to what extent, the improved one horse cart would be generally advantageous in Canada, we possess, at present, no facts to warrant an absolute decision. On large farms, and in districts not hilly, having tolerably good roads, such carts might, we think, be advantageously introduced. We could like to hear from farmers who have thought on, or have had any experience in, this matter. A saving in labor, by the employment of improved implements must be the principal means of enabling us to meet the present low range of prices for agricultural produce.

The following calculation of Mr. Dryden, bearing upon the present subject, as published in the Transactions of the Highland Society, will, perhaps, be interesting to the reader:—

“That the state of the road has a very material influence upon the animal power required to draw a given weight over it, every person is well aware, but few persons regard the difference between the labour

of drawing a carriage over a road in good condition, and the same road when out of order. This has been, however, experimentally determined, and we commend to every farmer and every overseer the careful and steady consideration of the results thus obtained. In these trials it was found that a light carriage, with four wheels, weighing with its load 1000 lbs., required a force of traction as follows:—

On a turnpike road, when hard and dry,	30½ lbs.
On the same road when dirty,.....	39 “
On a hard compact loam,.....	53 “
On an ordinary bye-road,.....	106 “
On a turnpike road newly gravelled,....	143 “
On a loose sandy road,.....	204 “

“The care with which all drivers avoid the newly gravelled portions of a road is well known, yet few of even the best whips, I think, are aware of the enormous difference of pressure upon the collar shown by the above table to exist, when the load is passing over a hard and dry turnpike road, and the same road when newly gravelled, composed of loose sandy materials.”

PLOUGHING.

From a letter received from a gentleman connected with the Hampshire County Society, we gather the following facts in relation to the trial of stubble ploughs, at the late exhibition of that society at Northampton. There were ploughs in use from four different manufacturers, but after a long trial, Ruggles, Nourse, Mason & Co.'s No. 37 was decided to be the best, on account of its great ease of holding, and its superior work.

A feat never before performed in ploughing, was accomplished by one of the contestants, who used Stubble Plough No. 38 of the same manufacturers. Starting his horses at one side of the field, he set the plough, and then let it run by itself to the end of the lot, a distance of 35 rods. Then it was just touched sufficiently to guide it round to the next furrow, when it *set itself*, and went through without a hand being touched to it. This is a quality which has long been desired, and it is manifest that the plough which can do its work well, without being held, has little need of any other recommendation.—*N. E. Farmer.*

VALUE OF THE ARTICHOKE AS AN AGRICULTURAL PRODUCT.—Recent investigations of this common root show that 100 parts by weight of the tubers contain 23.96 of alimentary substance, being richer in nitrogenous, fatty, and saccharine matters, and in phosphates than potatoes. It therefore follows that the Artichoke would prove most valuable for the fattening of pigs, cows, and animals generally, and its cultivation for this purpose is well worth the attention of farmers. As the tubers do not contain amylaceous substances, and are very easily soluble and digestible, it would be best to mix them with other aliments more resistant and less humid; such, for example, as dry fodder, bran, and grains, which would be ameliorated by the mixture. As to the difficulty of limiting their spontaneous reproduction, that may be prevented by the cultivation within boundaries, especially of plants which are cut down in the green, making weeded or hoed plants succeed them. The stems of the young artichokes also constitute a good green fodder.—*Proceedings of the French Agricultural Society.*



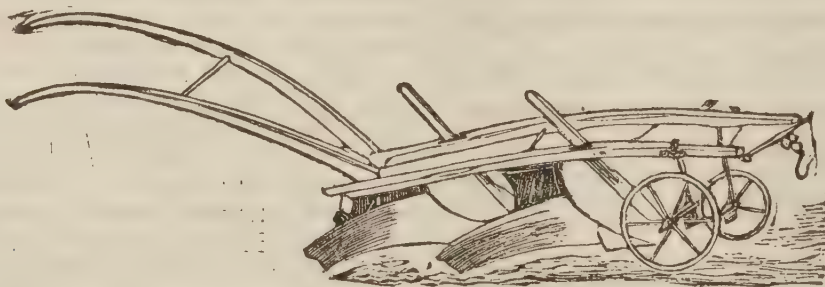
AYRSHIRE CATTLE.

This breed, as its name denotes, was first brought into notice, and improved in the County of Ayr, in Scotland, where it eventually obtained all the characteristics of a distinct breed, and it has established its character, both there and elsewhere, for distinguished milking properties. Professor Low gives the following as descriptive of the breed:—

“The modern Ayrshire may stand in the fourth or fifth class of British Breeds with respect to size. The horns are small, and curving inwards at the extremity after the manner of the Alderneys. The shoulders are light, and the loins very broad and deep, which is a conformation almost always accompanying the property of yielding abundant milk. The skin is moderately soft to the touch, and of an orange-yellow tinge. The prevailing colour is a reddish brown, mixed more or less with white. The muzzle is usually dark, though often it is flesh-coloured. The limbs are slender, the neck is small, and the head is free from coarseness. The muscles of the inner side of the thigh, technically called the twist, are thin; and the

haunch frequently droops much to the rump, a character which exists likewise in the Alderney Breed, and which, although it impairs the symmetry of the animal, is not regarded as inconsistent with the faculty of secreting milk. The udders are moderately large, without being placid. The cows are very docile, and gentle, and hardy to the degree of bearing to subsist on ordinary food. They give a large quantity of milk, in proportion to their size and the food consumed, and this milk is of excellent quality. Healthy cows, on good pastures, will give from 800 to 900 gallons in the year, although, taking into account the younger and less productive stock, 600 gallons may be regarded as a fair average for the low country, and somewhat less for a dairy-stock in the higher.”

The Ayrshires, in regard to early maturity and fattening purposes, are much inferior to the short horns, Herefords, and some other improved breeds—their chief recommendations consist in their hardy constitution and superior excellence as Dairy Stock. There are as yet but few of this breed in Canada, but in exposed localities where dairying is extensively carried on, they would probably be found well adapted, and yield a good profit.



DOUBLE PLOUGH.

This implement is in frequent use on most of the light soils in England—in summer working the land, and preparing for turnips, wheat, &c. It possesses important advantages in enabling the

farmer to get over a larger quantity of ground in a shorter space of time than with the ordinary plough, with a considerable saving of horse power. These ploughs being fitted with wheels are easily managed, they are steady in action,

perform their work thoroughly, and three good horses are sufficient for ordinary occasions. We have seen in Michigan and Wisconsin, ploughs of a similar kind, without wheels, adapted to the breaking up of grass-land. Upon well cleared farms in Canada they are certainly worth a trial.

THE LOW PRICE OF WHEAT—ITS REMEDIES

To the Editor of the Canadian Agriculturist.

SIR:—It is a well known fact that the commercial policy of the mother country has had a steadily depressing influence on the wheat growing agriculturists of Canada; so much as to leave just grounds to fear that the production and export of wheat as an agricultural product must, to a great extent, cease.

Under these circumstances it is time that the Canadian farmers were waking up and turning their attention to the culture and production of some other more encouraging, and, if possible, more remunerating crop. I, for one, must confess that it is a matter of utter impossibility, considering the present state of the markets, for a farmer to make both ends of the year meet without any other resource than that of his crops, which cost him (say for wheat) at the lowest calculation, about three shillings, or three shillings and six pence per bushel when delivered at the market, and which he is often compelled to sell for 2s. to 2s. 6d. per bushel, not being able to realize any more.

In consequence of these depressing considerations I am induced to make application to you, and to request that you will be kind enough to furnish all the necessary information regarding the culture of the flax and tobacco plants in Canada, or any other plant that, in your opinion, would be more remunerating than that which is now considered the staple product of the Canadian farmer, the nature of the soil that each may respectively require, the quantity and quality of seed best adapted to the soil and climate of Canada; the proper time to sow and reap, and the state the land should be in when sown; the best mode of saving after being cut, the average crop per acre, cost of raising, and its value in the Toronto or any other market, and your opinion of their production and culture as forming part of the agricultural pursuits of the Canadian farmer, together with any other information that your position and experience as a Canadian agriculturist may be able to command.

I am, &c.

HENRY WHITE,
P. L. Surveyor.

Beaverton, Feb. 13th, 1852.

We hope to be able to give the information which our correspondent asks before long. The Commissioner of the Canada Company has ordered all the best modern treatises on the culti-

vation and preparation of flax and hemp published in the British Islands, and has generously promised to present them to the Board of Agriculture, for the purpose of preparing from their contents a series of articles for this journal. We are much in hopes that wheat has seen its lowest price, probably for some years to come. It is, however, of the greatest consequence in practical husbandry that as great a variety of productions should be raised as is practicable; thereby preventing the soil from utter exhaustion, which is the inevitable result of frequently recurring crops of the same kind in this country, where ample and suitable manures are not generally available. A wider range of cultivated productions would likewise benefit the farmer in the long run, by diminishing the numerous chances of failure which so seriously affect those who mainly depend upon one or two articles; such for instance as wheat, which hitherto has been the principal money producing crop of the Upper Canadian farmers. Wheat must long continue a principal crop in this country, but the farmer should avail himself of several auxiliaries.—*Editor.*

COST OF RAISING WHEAT, &c.

To the Editor of the Canadian Agriculturist.

DEAR SIR,—Many thanks for the copies of your most useful paper. I sincerely hope the Essays you have published, and are publishing, will draw forth further observations from practical men, and lead to discussions which cannot fail to be beneficial. One so seldom sees *on paper*, in Canada, the thoughts of thinking Canadian Farmers, that our experience is derived almost solely from personal observation, or from intercourse with brother Farmers whom chance throws in our way. The encouragement given by the publication of farmers' essays, and the prizes awarded to such will no doubt have the effect of drawing out the light of some minds, which has been too long hid under a bushel, and will probably lead to experiments being made and results communicated, which may confer great benefits upon great numbers.

With the view of thus eliciting the experience of others for our mutual benefit, I herewith send you some remarks which I conceive to be interesting, and which a List of Queries sent by the Board of Registration and Statistics for replies thereto, has led me to a fuller consideration of, than I had ever before entered into.

Whilst replying to them all, I was particularly attracted by the question—What is the Cost of raising Wheat? To this I had never paid any very particular attention, and was much struck to find that it stands somewhat thus. Supposing it to be under the summer fallowing system, by which probably 9-10ths of all our winter wheat is raised—also supposing that the average crop in

Upper Canada is 17 bus. per acre, which I believe is not disputed:—

	Dr.	
To two years' Rent or Interest of cleared land, at 10s. per acre, - -	£1	0 0
To one-third of expense of manuring (the other two-thirds being charged to the following crops) 25s. per acre,	0	8 4
Seed - - - - -	0	7 0
To three ploughings and draggings, and water-furrowing and rolling, per acre, - - - - -	1	0 0
To Cradling and Binding, - - - - -	0	5 0
To threshing and cleaning 17 bushels, at 4d. per bushel, - - - - -	0	5 8
To drawing in and taking to Mill or Market, 2d. per bushel, - - - - -	0	2 10
	£3	8 10

These prices are not more than the actual cost. The rent of 10s. per acre is not too high, considering that the *cleared* land has to pay the interest for the wild, and the other prices are such that no farmer could afford to do the work for less. Deducting, then, the 8s. 10d. for the straw, the actual cost of raising an acre of wheat is £3; and, taking 17 bushels as the average, the cost of raising wheat is 3s. 6d. per bushel—and the selling price at present in Belleville is only 3s. 3d. I may here remark that the average crop of this county for 1851 is about eleven bushels per acre, owing to the depredations of the weevil, which is fast travelling West—having come into the County of Hastings from the East, about two years since, and its ravages having extended this year to within six or seven miles of the Western Boundary; and it is well worth observing that its ravages have been much more destructive on late sown than on early sown wheat. The acreable produce given above (say eleven bushels) has not been made up from the census lists of this year; but the Commissioner here has promised me a sight of them, and, when I have accurately ascertained the average of all the crops grown in the county, I will send them to you, with pleasure, as this description of information must be very interesting to all your Agricultural readers;—and I hope in every county some one will take the trouble of computing the acreable yield of every description of crop.

Having ascertained, then, Mr. Editor, that even with an average crop the expense of raising wheat is 3s. 6d. currency per bushel, and this year as high as 5s. 5d. per bushel in this county (for the expenses are about the same *per acre*, whether the crop be large or small)—is it not high time for us farmers either to try to increase our averages, or turn our attention to the cultivation of other descriptions of produce? Having occasionally grown *flax* in the North of Ireland, I think it would be found to be very suitable, both to our climate and soil, and it being easily compressed, it would form an article of advantageous export.

How far the Provincial Association would be warranted in importing good seed and suitable machinery for scutching (such as could be attached to a common horse power) is a subject well worthy of grave consideration. The culti-

vation of this crop has done a vast deal of good to other countries, and much and valuable aid has been given by many *public bodies* to foster its growth and preparation for the manufacturers.

Although it is in general much better to leave these matters to private enterprise, yet in the present youthful state of our Agriculture and manufactures, a private individual could not be expected to incur the risks which such a speculation would involve, and it is certainly worthy the consideration of the leading men of an association, whether they ought not to encourage the growth of flax, either by large premiums, or by more direct aid in the way of importing machinery, or by both of these methods. We require every encouragement from public bodies quite as much here as in the Old World, to induce its proper cultivation, as there are comparatively so few who understand its nature and properties; and few are willing to grow it unless they had the means of preparing it for market.

In case any of your readers should wish to try it, I may remark that it generally rejoices in a clay soil, not too heavy, and is always best the *second* crop after clover lay.

As you say you like short practical observations, I take leave at present, wishing you much success in your useful labours and many congratulations upon your well merited advancement to the Chair of Agriculture in our Provincial University.

I remain, yours truly,

WILLIAM HUTTON.

Belleville, Feb. 12, 1852.

Whilst thanking our respected correspondent for his friendly congratulation, we have much pleasure in informing him that his expressed wishes in reference to Flax are soon likely to be realised. Mr. Commissioner Widder, of the *Canada Company*, has signified to us his intention of importing from England, next season, one of Claussen's Flax Dressing Machines; that gentleman has already announced, on behalf of the Company, liberal prizes for flax and hemp, to be awarded at the next Provincial Exhibition, and we have no doubt but the Board of Agriculture will lend this movement all the aid in their power.—EDITOR.

THE PARSNIP.

THOROLD, Jan. 27, 1852.

SIR,—In your next number would you, or some of your subscribers, answer me the following queries:—

1. Will the garden parsnip, if left to run to seed any length of time without cultivation, become poisonous?

2. If so, at what stage, or in how many generations will it become so? or is it the root that has borne seed that is poisonous?

3. Will the same parsnip produce seed more than once?

4. If it become poisonous by non-cultivation, will the seed gathered from the poisonous ones, if planted and cultivated, become again fit for food?

5. Are there two kinds of parsnips—the garden parsnip, which is wholesome; and the wild kind, which is poisonous?

An answer to these would much oblige and help to decide a good many pros and cons between certain individuals, and

Yours very obediently,

INQUIRER.

We have been favoured by a scientific friend with the following answers to the above queries, and trust they will prove satisfactory to our correspondent:—

Answer 1. Certainly not. The wild parsnip is a native of England, where it is not considered poisonous: the roots of the wild plant are less succulent, more fibrous, and of a stronger taste than those of the cultivated variety. The garden parsnip is the native wild parsnip improved by cultivation.

2. It is not poisonous at any stage of its growth. As the wild plant is not poisonous, the cultivated variety could not become so when allowed to return to a state of nature.

3. The parsnip is a biennial plant; it produces a root and bears the first year, and flowers and seeds the second season; it dies as soon as it has ripened its seeds.

4. Already answered.

5. No.

In England there are several poisonous plants, the roots of which are occasionally eaten by poor people and children who mistake them for parsnips. Such is also the case in the United States and Canada; hence has arisen the idea that the parsnip, when permitted to return to the wild state, becomes poisonous. The plant, which I believe to have been the cause of the most mischief in this province is the *Cicuta maculata*, water hemlock, whose root is a most deadly poison.

The parsnip is not a native of N. America; it was introduced from Europe, and escaping from cultivation has become naturalized.

The only author, to my knowledge, who has ascribed any deleterious properties to the wild parsnip, is Dr. Bigelow. In his work on the plants of Boston, he writes:—"The parsnip in its wild state is abundantly naturalized in waste grounds. The root is materially changed by difference of soil. It becomes strong, acrid, and virose." It will be seen that Dr. Bigelow attributes this supposed alteration in the qualities of the root not to the want of cultivation, but to difference of soil. It is certain that difference of soil produces no greater changes in the cultivated parsnip than it does in the potato, turnip, or carrot; why, then, should it cause so great an alteration in the properties of the wild plant? Moreover, the wild plant is generally found growing

about the fences of fields in the same, or similar soil, as the cultivated variety.

M. D.

STRANGLES IN HORSES.

To the Editor of the Canadian Agriculturist.

SIR:—Among the valuable receipts supplied by "*Knowlson's Complete Farrier*," I notice one in your December number as applicable in the disease known as horse distemper or strangles, and which is equally valuable in all cases of wounds, where the promotion of suppuration is necessary, and an effectual cleansing, without a too hasty healing of the sore, is desirable. My purpose in writing is to call the attention of persons compounding the ointment to the *modus operandi*. The ingredients, excepting the verdigris, should be melted in an earthen vessel and when sufficiently liquified and incorporated by stirring, should be removed from the fire and carried out of the house, and then have the verdigris added thereto; return it then to the fire for a simmering of a minute or two, stirring all the time; after which strain it through a coarse canvass while yet hot, and put away for use. The reason for not using the verdigris while on the fire is, that so sudden and violent an ebullition takes place at the moment of admixture that the other inflammable materials instantly boil over the vessel, with a chance of the loss of the whole and of a conflagration not easily subdued. The necessity for straining arises from the verdigris being frequently full of impurities, often containing particles of copper which have not been acted on by the acid in the process of manufacture; these, it must be evident, will irritate and aggravate the wound, and greatly retard the healing operation. In cold weather it will require warming at the time of application.

A NORTHUMBERLAND FARMER.

To increase the utility of our correspondent's directions, we append the receipt to which his observations refer.

Take yellow rosin and Burgundy pitch, of each one pound; honey and common turpentine, of each half a pound; bees' wax, four ounces; hogs lard, one pound and a half; and of verdigris, finely powdered, one ounce. Melt the ingredients together, but do not put the verdigris in till nearly cold, and keep stirring all the time till cold, or the verdigris will fall to the bottom.

SKILL IN FARMING.—Skill adds more to the profits of farming than hard work. In the article of butter, for instance, the same outlay is required, or nearly the same, to make a hundred pounds of poor butter as would be required to make a hundred pounds of that which is good. But, when the two articles are marketed, there may be five or six dollars of clear extra profit in the pocket of the skilful dairyman. The importance of scientific knowledge is realized by those who have found such benefits as is noted above in nearly every department of their labor.

REAPING MACHINES.

To the Editor of the Canadian Agriculturist.

DEAR SIR:—I noticed in the December number of the *Agriculturist* a communication, reflecting rather strongly on the decision of the Judges, upon the relative merits of the reaping machines, exhibited in the foreign department, at our late Provincial exhibition, held at Brockville last fall; and if it was not a matter which may seriously affect many of the agricultural community, who have not had the chance of seeing the practical operation of those machines, I should not have trespassed on your pages, at this late date to reply; more particularly after the triumphant result of the trial before a jury of thirteen gentlemen, under the auspices of the Cleveland Agricultural Society in Yorkshire, England, the particulars of which have been published in nearly all the papers, both in Great Britain and on this continent.

I hardly suppose that your correspondent had any interested motive in writing the communication in question, but simply from the report then current, of the great success of McCormick's machine, at the trial on Mechi's Farm in Essex, England—and also as he states having twice received the first premium at the New-York Fair, (though he does not state how often Hussey's received it,) he might naturally enough have concluded that the Judges on this occasion at Brockville, might not have heard of this, and might be deceived by paint, varnish, and so on, and so give the premium to the "highly finished machine;" but I can assure him that such was not the fact; for the exhibitor of the McCormick's machine was on hand, and lost nothing, by not making all this known to the judges, if they had not themselves heard the report from the newspapers.

You are well aware sir, of the difficulty that judges on such occasions have to encounter, with regard to implements, and machines submitted to their decision, without having any means of testing them, and how easily, if they have ever seen them tried, they may be deceived; and more,—even after seeing them tried, as those machines were on the first occasion in England, how through inexperienced hands having the management, the decision may be given in favor of the inferior article, as it has been proved to be at the last trial of the meeting in question. But on this occasion one of the judges happened to be a practical man, who had worked reaping machines for not less than seven years, and is now in possession of one of each kind of those rival machines, and had fairly tried both, and having no interest in favor of one over the other, any farther than their relative merits were concerned, gave his judgment of course in favor of the one which had pleased him best; and as your correspondent on this occasion was the man, he will briefly state his experience.

I purchased, in the first place, one of Hussey's reapers, and used it for three or four years before McCormick's was introduced into this Province. It was, however, far inferior to the improved Hussey's machine now in use, and not pleasing

me exactly, I sold it and bought one of the McCormick's, thinking that it was of easier draught, and raking off the side might be an advantage; I used it two years, or rather tried to use it, for unless the grain was standing, and every thing favorable, it would not operate, and from the flimsy manner it was got up, a day scarcely got over without something giving way, and I had almost given it up as useless; so much so, that in the harvest of 1850, I commenced cutting by hand, the grain being very stout and all laid down. I knew very well my McCormick machine would be of no use, and had not taken it out of the building where it was stowed away, when, fortunately, one of the agents for the sale of Hussey's reaper called on me; I took him to look at my crops, and asked him if he thought his machine would cut them, (the wheat was forty-five bushels per acre, with straw in proportion, and all lodged as flat as it could be beat down.) He said it was certainly a hard case, but he thought it would; and from my former experience with the old machine, I concluded to try it. I did try it and succeeded. I of course could cut only one way, and return empty, but then I could keep eight binders at work, as "tight as they could jump." I completed my harvest last year with it, and last harvest time I cut for myself and neighbors, nearly 200 acres without any accident of consequence, and the machine, after two years' service, is now almost as good as new,—and I am not afraid but it will for the next five years, cut all the grain I grow, and some for my neighbors. I might also state, that within three miles of my residence, three or four of the McC. machines have been tried for two or three years and abandoned, and the owners are now using the Hussey's machine to their complete satisfaction.

My only object in addressing you now, is to prevent my brother farmers from being imposed on by the ephemeral success of the McCormick machine at the first trial in England, as it has been satisfactorily proved to have been a very unfair one; the McC.'s being managed by experienced hands, while the Hussey's was entrusted, so says the *Illustrated London News*, to "one of the porters at the Exhibition," just as capable to manage it as a *tailor to hold a plough*. I have considered it not less than a duty to lift up my voice in expressing my practical experience in this matter, for I consider that as soon as the land is sufficiently cleared of impediments, to admit of the use of them, that a good reaper is one of the most useful labor saving machines now extant; and when an inferior article is foisted on the public, they lose their money, and condemn the article in disgust, and lose the advantage they would gain by fortunately getting a good one. And to conclude the matter, I state that I have cut, when the grain stood up, so as to cut round the field two acres per hour, on the average at a common walk for the horses, and on a push have cut three. I was at Rochester at the time the New-York State Fair was held, and saw not only the reapers in question, but also three or four other patented reapers,—two or three of them self-rakers; I thought the raking off, and driving could hardly be performed by the same person, and particularly as it complicates the machinery, and I have

bound that the stoppages resulting from too much machinery, always was more loss than gain, and if one good machine with two hands can cut from 15 to 20 acres of grain per day, it is best to let "well enough" alone.

Now, a word with regard to raking off. The Hussey machine leaves the grain behind, and it must be bound up before you can go round again, whereas the McCormick throws it outside of the track, and you can cut down a whole field without binding a sheaf; this is a seeming advantage, but not a real one, as the grain has of course to be bound; and I would much rather bind it at once than let it lie on the ground, for, if it should rain, the grain lying in bunches would have to be spread out to dry, making additional work; and, more than that, the binders work with more spirit when stimulated by expecting the machine round again as soon as their portion is bound, and will bind one-third more than if they were not thus urged. I would be much pleased if you would publish, in conjunction with this communication, the result of the trial before the Cleveland A. S., Yorkshire, you will find an abstract of it in the *Albany Cultivator* for January, page 46, where they were tested, before a jury of thirteen gentlemen, under nine different points of comparison—the jury only decided on seven points—the weather being unfavourable, they declined expressing their opinion on the last two, viz., which requires the most amount of horse labour, and also the amount of manual labour; but I say most decidedly that the Hussey machine is much superior in both these points, and particularly in manual labour, as I have myself raked with them both.

And I will now conclude this altogether too long an article by recommending all farmers who have their land sufficiently clear of stumps and stones to work a reaping machine, to get the Hussey kind, and will warrant it to afford (if they give it a reasonable chance) every satisfaction, and, if it is necessary to back my testimony, I can get, in one hour's walk, half a dozen of my neighbours who have tried both machines, to endorse my assertions.

Yours most truly,

One of the Judges on the Foreign Department,
At Brockville.

Our correspondent has enclosed to us some results obtained by the trial of Hussey's and McCormick's Reapers, which took place last harvest, under the direction of the Cleveland Agricultural Society, in England. We subjoin the principal facts as given in the papers. We cannot lay our hand on the January number of the *Albany Cultivator*, or we should be glad to comply with our correspondent's request:—

"The performances of the rival inventions were tested by a jury of thirteen gentlemen, on a crop of wheat, 25 bushels to the acre, very much "laid," and a fine barley, also 25 bushels to the acre, very short in the straw, and if possible, more laid than the

wheat. The result was that the jury gave their award in favor of Mr. Hussey's machine upon seven out of the nine leading points on which it had been pre-arranged that their decision should turn. These seven points of superiority were:—

"1. That Hussey's reaper cut the corn in the best manner, especially across ridge and furrow, and when the machine was working in the direction the corn laid. 2. That it caused least waste. 3. That it did most work (taking the breadth of the machines into consideration). 4. That it left the cut corn in the best condition for gathering and binding. 5. That it was best adapted for ridge and furrow. 6. That it was least liable to get out of order. And, 7. That its first cost was the least. Of the two remaining points (viz., which required the least amount of horse labour, and which the least manual labour), the jury declined to express any decided opinion, in consequence of the very unpropitious state of the weather."

Hussey's Machine was afterwards tried before Prince Albert in Windsor Park,—the material being Fern, and the action of the implement was highly satisfactory to the Prince, and a large number of beholders. At the close of the trial his Royal Highness ordered two of the machines for himself, one for Windsor and the other for Osborne.

The American Reaping Machines having created considerable interest in England, it might be supposed that nothing had been attempted in the old country towards the construction of such an implement. The truth, however, is, that the Machine is a British invention, and that the principal merit, rightfully belonging to our ingenious and enterprising neighbors, consists in effecting such improvements in its practical working, as to adapt it to the wants and circumstances of a new country. There is an elaborate article on the subject in the *Scottish Journal of Agriculture* for August, 1828; and in *Loudon's Encyclopædia of Agriculture*, the origin and progress of these Machines are succinctly traced, from the one made by Boyce, in the commencement of the present century, down to the improvements effected by Bell, of Scotland—accompanied by two engravings of the latter. Various reasons could be assigned why Reaping Machines have hitherto made but little progress in Great Britain; and, such being the improvements effected of late years in the mode of cutting grain by the Sythe and Hook, we are not so sanguine as to expect the rapid introduction even of the much improved American Reapers, except, perhaps, in particular localities. Upon moderately size farms—where the mixed hus-

bandry is pursued, and particularly when the enclosures are small and the surface furrowed and uneven, which is the condition of a considerable portion of the old country, we are decidedly of opinion, that with their facilities of obtaining labor, the ordinary modes of gathering the harvest are both the cheapest and the best. In an open and tolerably level country, such as the more abundant grain growing districts of the Eastern parts of England, and the South of Scotland, where, too, hands are comparatively scarce, the improved Reaping Machines will supply a desideratum which has been long, and sometimes painfully, felt.

CHEMISTRY APPLIED TO AGRICULTURE.

Among the various occupations which require a knowledge of this science to be efficiently carried on, that most noble, useful, and universal of all human pursuits, agriculture stands pre-eminent. The farm is a great laboratory, and all those changes in matter which it is the farmer's chief business to produce are of a chemical nature. He breaks up and pulverizes his soil with the plough, harrow, and hoe, for the same reason that the practical chemist powders his minerals with pestle and mortar, namely, to expose the materials more perfectly to the action of chemical agents. The field can only be looked upon as a chemical manufactory; the air, soil, and manures are the farmer's raw materials, and the various forms of vegetation are the products of manufacture. The farmer who raises a bushel of wheat, or an hundred weight of flax, does not fabricate them out of nothing; he performs no miraculous work of creation, but it is by taking a certain definite portion of his raw material and converting it into new substances through the action of natural agents, just as those substances are again manufactured in the one case into bread, and in the other into cloth. When a crop is removed from the field, certain substances are taken away from the ground which differ with different kinds of plants; and if the farmer would know exactly what and how much his field loses by each harvest, and how in the cheapest manner that loss may be restored, chemistry alone is capable of giving him the desired information. To determine the nature and properties of his soil, its adaptation to various plants and the best method of improving it; to economize his natural sources of fertility, to test the purity and value of commercial manures, and of beds of marl and muck; to mingle composts and adapt them to special crops; to improve the quality of grains and fruits; to rear and feed stock and conduct the dairy in the best manner, farmers require a knowledge of this science. Nor can they as a class much longer afford to be without it, for it has always been found that the application of scientific principles to any branch of industry puts power into

the hands of the intelligent to drive ignorance from the field of competition; so that as discoveries multiply and information is diffused, those farmers who decline to enquire into the principles which govern their vocation, or who prefer the study of politics to that of agriculture, will have occasion to groan more deeply than ever over the unprofitableness of their business.—*Youman's Chemistry.*

WHAT IS PRACTICAL FARMING?

Farming has been so respectable an occupation of late, and the title of farmer so honourable, that grave questions are likely to arise, which may require the intervention of Heraldry, to determine who has the right to bear that title, and what order of precedence shall be established among the various claimants of the exclusive privilege of bearing the ensigns armorial of Husbandry. The *Practical Farmer* undoubtedly stands head and shoulders above every body else, but the question returns, *Who is the Practical Farmer?* We have amongst us all kinds of farmers. First, we have the *amateur* farmer merely, who does not know the *near* from the *off* side of a team, who has read of subsoil ploughs but never saw one, and who knows all about chemistry and geology that can be learned without soiling his boots by stepping out of doors. Ask him if he could conduct the affairs of a farm, and he would give the same answer as the youth who was asked if he could play the flute—"I suppose I could, but I never tried." Manifestly, *this* is not the practical farmer. Then we have the man who prides himself upon being a farmer and nothing else; he lives on the same farm where his great grandfather was born, and inherited his knowledge of husbandry with the old wooden ploughs, which he still uses. He takes no agricultural paper, and reads no books on the subject, because he knows all about it already. He is not to be humbugged by any science, or new-fangled notions about composts, mineral manures, or deep ploughing. Manure, with him, is what he finds left in the spring, out doors, under his hovel-windows—about a load for each ton of hay consumed—and he ploughs about four inches deep, and puts manure in the hill where corn can find it. His boys have discovered that farming *went* pay, and have gone to California, while he finds the buildings and the tools have grown old, and the interest on the old mortgage is gradually gaining on him. However, he is sure he is one of the class, which are termed the *bone* and *sinew* of the country, and the only true *practical* farmer. That he is a practical, as well as a most *impracticable* farmer, there is no doubt.

Then we have a third class of men who may have worked all their lives upon the land,—of men who, having acquired a taste for farming in youth, after successful toil in another business for years, have returned to their first love, and devoted their later years to agricultural pursuits—professional men and merchants, who have room in their brains for more than one idea, are conducting their farming operations at the same time with their other affairs—in short, a class

composed of all those who believe in *progress* in husbandry, as in everything else, and have the personal direction of their farms. The farmers of this class do not believe that the earth gave up all her secrets at once to the tiller of the soil. They do not think, like the Chinese, that they are precisely in the centre of the world, and all others are *outside barbarians*. They see that the soil of the country has been exhausted by injudicious cropping, and feel the necessity of improvement.

They listen attentively to the chemist, or man of science, who tells them what are the components of the soil, and of the crop, and in what way they can best restore to the barren field the elements of fertility. They are willing to hear about subsoiling and draining, and to think upon the reasons given why those operations should be beneficial. They can conceive, and believe, upon paper evidence, that there may be manures besides what are found in the barn-yard. In short, they are willing to "try all things" that they may "hold fast that which is good," or in other words to expend time and money in making experiments for the benefit of their neighbours. These men are emphatically *Practical Farmers*—practical as opposed to the mere *theorist*—*practical* in the highest sense as men whose labours are of practical use to themselves and their fellow men.

There is still another class, who, as cultivators of the soil, are *practical* men. We refer to the gardener and horticulturist,—from whose experiments have been derived many of the most important improvements in the arts of cultivation. Witness the labours of those, both in Europe and in this country, in the production by hybridization, of new and valuable farm products, for the apple, the pear and the peach. The beet, the turnip, the cauliflower, and even the strawberry and raspberry are as much agricultural products when grown within, as without the pale of the garden fence. These are the men who have uniformly urged the necessity not of shallow plowing, but deep and thorough tillage; not guess work in the adaptation of soils, crops and manures, by a scientific knowledge of each; and should the farmer use the same precision in the adaptation of the constituents he uses for his various crops, as the gardener does for his various tribes of plants, it would need no seer to predict the beneficial effects resulting from it.

A practical cultivator is not necessarily a man who daily holds the plough, or drives a team, or shovels manure, or digs ditches. He may or may not put his own hands to such labours; and if he finds it more convenient to devote his time to the general direction of his affairs, while a foreign labourer, who can do nothing else, is hired for such work, he does not forfeit his title of *Practical Farmer*, nor the labourer merit that appellation.

If to be a practical farmer is merely to labour with the hands, then the farmer who has extended his practical operations on his farm so far that his whole time is required to direct them merely, is no practical farmer, although practical results may have multiplied indefinitely around him—an absurdity which can never be tolerated.—*New England Farmer*.

LORD SPENCER'S RULES FOR THE SELECTION OF MALE ANIMALS FOR BREEDING.

The first things to be considered in the selection of a male animal are the indications by which it may be possible to form a judgment as to his constitution. In all animals a wide chest indicates strength of constitution, and there can be no doubt that this is the point of shape to which it is most material for any breeder to look to in the selection either of a bull or a ram. In order to ascertain that the chest of these animals is wide, it is not sufficient to observe that they have wide bosoms; but the width which is perceived by looking at them in the front should be continued along the brisket, which ought to show great fullness in the part which is just under the elbows; it is also necessary that they should be called thick through the heart. Another indication of what a good constitution is, that a male animal should have a masculine appearance; with this view a certain degree of coarseness is by no means objectionable, but this coarseness should not be such as would be likely to show itself in a castrated animal, because it thus might happen that the oxen or wethers produced from such a sire would be coarse also, which in them would be a fault. Another point to be attended to, not merely as an indication of a good constitution, but as a merit in itself, is, that an animal in itself should exhibit great muscular power, or rather that his muscles should be large. This is an usual accompaniment of strength of constitution; but it also shows that there will be a good proportionate mixture of lean and fat in the meat produced from the animal, the muscles being that part which in meat is lean. A thick neck is, in both bulls and rams, a proof of the muscles being large, and there hardly can be a greater fault in the shape of a male animal of either sort, than his having a thin neck. I am inclined to say, that in the new Leicester breed of sheep, which is the breed to which I am accustomed, a ram's neck cannot be too thick. Other indications of muscle are more difficult to observe in sheep than in cattle. In a bull there ought to be a full muscle on each side of the back bone, just behind the top of the shoulder blades; he ought also to have the muscles on the outside of the thigh full, and extending down nearly to the hough. It will seldom happen that a bull having these indications will be found deficient in muscle. As I am writing for the use of farmers, it is quite unnecessary for me to attempt a description of what is considered a well shaped bull or ram; it is also obviously impossible to express in words what is meant by good handling. It is sufficient to say, therefore, that no male animal is fit to be used at all as a sire, whose handling is not good, and the more perfect his shape, the better.

FRENCH SHEEP-DOGS.—An English traveller speaks of the dogs which are used in Normandy, in the management of sheep, as being uncommonly valuable. He thus describes one:—"The animal was some cross of the breed commonly known in England as lurchers; and the quick sparkle of the eye, and the ready and eager intelligence of his face as he watched his master, and flew round and round the flock at the slightest gesture, or merely mumbled word of

direction, were really beautifully to see. The shepherd told me he was a most valuable dog—he would not sell him for 200 francs."

HINTS FOR MARCH.

CARE OF LIVE STOCK—MAPLE SUGAR MAKING, &c.

Mr. Editor,—I propose again, with your permission, to submit a few common-place observations and suggestions suitable to the time and season, which shall be perfectly at your service if deemed by you worthy a place in your columns. If I do not attempt to advance anything altogether new or original, I hope, at least, that the repetition of anything that may be perfectly obvious, will not be offensive to the experienced Agriculturist, if it shall seem to afford to any of those less practically familiar with the pursuits of farming, any slight chance of receiving an occasional hint in season, which may be of some value, if attended to.

The operations of March, generally consist very much in a continuation of the various kinds of work of the preceding winter months, with the difference that the increasing power of the sun and the approaching genial warmth of spring, warn the farmer to arouse his energies, recruited by the bracing atmosphere of winter, and shape his work with a view to being ready to battle vigorously with all the important labours to be encountered in spring, the moment that season makes its advent.

During this month, the live stock on the farm require increased care and attention; working horses that have not been kept upon full feed during winter, should now, especially if they *have been kept at full work*, be well fed upon good hay and grain, with a little bran occasionally, in order that they may be in proper condition to walk through their work expeditiously, without the danger of becoming *walking skeletons*, or nearly so (as many farm horses may be seen in spring,) when the busy season arrives. At this season, horned cattle, reduced and enfeebled in constitution by the cold winter and the want of sufficient nourishing food (and in this state, I regret to have to say, the majority of the cattle in the country will be found), will fall off more than during the winter months, unless well fed; they should now have a little hay, at least once a day, if they have not had it hitherto. A few turnips, or other succulent roots, will also be relished by them, and will serve to prepare them for the pasture fields. A little salt, also, once in a week or ten days, will keep them in health and good appetite. Cattle should not be allowed to wander over the meadows while the frost is disappearing, as they injure them very much by tramping on them, while in a wet state; and the little they can pick up, is of but slight if any service to them. Sheep will now be benefited by having a few turnips, carrots, parsnips, or other nourishing roots, with their hay, and a little salt, occasionally. Ewes likely to lamb early, must also be carefully watched and attended to.

All winter work remaining on hand, should be

at once despatched, the grain all threshed, cleaned up, and stored in the granary, if not disposed of in the market. The late rise in the price of breadstuffs, occasioned a good deal of activity in the delivery of wheat by farmers at the mills, and store-houses, which has again been suspended upon the partial decline in prices. As far as I am able to form any opinion upon the subject, I should say that there is but little fear of a much further decline, but rather the contrary. But opinions of this kind often turn out to be mere guess work. At any rate, it is a very good plan for farmers to go on delivering their wheat while the roads are favourable, and, if they do not like the current price, make their bargain with the miller to take the current price, at whatever time they choose to demand payment. This is a very common way of selling wheat in the country, and also occasionally barley, and answers both parties very well. The farmer should only be careful not to be too greedy, but to be contented with the price when it is really good, lest he miss his opportunity and be compelled to take a much lower price for wheat in the miller's hands than he might previously have obtained. Many instances of this kind have fallen under my observation. Of other work on the farm—hay, that will be required for working cattle and horses, should be got into the barns and stables that no time may be lost in going after it, when required for immediate use; cut also timber required for fencing, split the rails as soon as the frost is out of it sufficiently, and, as soon as the snow leaves the ground, repair the old fences and make new ones where required. Much valuable time will be saved by having all such work executed before the fields are ready to be ploughed and sown.

The close approach of spring now renders it necessary to look to all the farming implements and tools, and to see that they are in the best possible working order. The plough irons should be relaid and sharpened, the harrow teeth pointed, and the harness repaired, if necessary, oiled, and put in good working order. Every farmer should provide himself with a full assortment of working implements—ploughs, harrows, cultivators, drill-barrow, or sowing machine, roller, &c. When new implements are required, get them of the best quality and the best pattern, and as light as possible for the team, consistent with strength and effectiveness. Every description of seed required for spring sowing, should now be procured, and of this the very best quality of each kind. Let it be also perfectly cleaned and free from every impurity of all kinds, whether the seeds of weeds, or destructive insects. The importance of this precaution can scarcely be overrated.

In regard to the preparation of the land itself, for spring crops, we, in Canada, must of course wait till such time as the disappearance of the frost leaves it, in a fit state to admit of the commencement of operations. From observations recorded for a good many years, I find that in this part of Canada, spring ploughing, as a general rule, may be commenced at some period between say the last of March and the middle of April, the higher situations, and the light and dry soils, admitting of the earliest commencement. The earliest spring ploughing that I recollect seeing,

was upon the 2nd day of March, 1838, and the latest commencement of the same, upon the 1st day of May, 1843 (an unusually late season). All that farmers can do in the mean time, that is, till the frost disappears, is to attend to every other branch of labour in connexion with the season, that nothing may be in the way to prevent field-work being begun the very moment the ground is ready. The advantage of having had a good breadth of ploughing performed in autumn, will now be appreciated. In no business or profession is it more necessary to take time by the forelock than in farming. Time and opportunities once lost or wasted are not easily recovered, and if the farmer once gets behindhand with his work, it keeps him labouring at a disadvantage the whole season. The season for sowing in this country is short, and if a part of it be lost in attending to matters which should have been attended to before, it will be a cause not only of loss and an increase of toil, but of vexation and annoyance in many respects.

From about the first to the fifteenth of this month, the season for the manufacture of maple sugar usually commences, although varying considerably in different years. This is a branch of rural economy, of course not much attended to in the older settlements, where the maple tree is becoming scarce, but which, in new settlements, where the maple abounds, is well worthy of attention, and will perhaps produce as considerable a return, in proportion to the time and labour expended upon it, as any other branch of new-land farming. And as the business is conducted at the particular season of the year, when, in new settlements, there is often not a great amount of other work on hand, as it is just upon the breaking up of winter before spring sowing can be commenced, many farmers and settlers upon new land, who have plenty of maple and hands enough to assist, make quite a profitable business of it, and manufacture not only enough for their own use, but also frequently a considerable surplus to exchange at the country stores for other necessities. The quantity made in a favourable season, may be an average of two pounds to each tree tapped, besides molasses, and an active man, with a yoke of oxen and sleigh to gather the sap, and two or three hands to assist him occasionally (boys and girls do very well for a good deal of the work) may undertake the management of from 200 to 400 trees. The common process of the manufacture is tolerably well known to most old settlers, and those newly imported, soon acquire a knowledge of it. I need not therefore describe the particulars; I will, however, merely say that if those farmers or settlers who undertake the manufacture of maple sugar, would endeavour to effect some improvement upon the old-fashioned plan of managing it, they might succeed, not only in making an article much pleasanter for domestic use, than that generally made, but might produce an article that would sell readily at a good cash price. I have several times seen maple sugar that could scarcely be distinguished, either in taste and appearance, from imported crushed loaf sugar. The principal points to be attended to in making a good article, are, the observance of perfect cleanliness in every part of

the manufacture;—boiling the sap before it has stood too long; taking care not to let the syrup burn, and adopting a proper process of clarifying. In the first place, see that all the troughs or other vessels for receiving the sap, are perfectly clean and free from old leaves, &c., and also the trough or cask for storing at the boiler. Gather the sap once at least every day, strain before boiling, to remove any leaves or other colouring matter that may have got into it, and boil down immediately. A little lime water added, will assist in the process. Care must be taken as it approaches the consistency of syrup, or thin molasses, to moderate the fire, or it will boil over and burn, which quite spoils it for sugar. When boiled down to syrup, it is taken off the fire, strained through a close flannel cloth, allowed to cool, that all the sediment may settle to the bottom of the vessel, and then returned to another kettle smaller in size than the first boiler, in order to undergo what is commonly called the "*sugaring off*" process. At this point of the operation, it is necessary to adopt some means to cleanse the syrup from all impurities, which the straining could not remove, and which consist of minute particles of dust or other matter. One method of doing this, and sufficient for ordinary purposes, is to mix the whites of two or three fresh eggs, well beaten, a pint of milk, and half a spoonful of saleratus, with a sufficient quantity of syrup to form say forty pounds of sugar, stirring in the mixture when the syrup is about at a blood heat. As the heat gradually increases, all the impure particles will unite with the eggs, &c., and rise to the surface, and must be carefully skimmed off, care being taken not to allow the syrup to break into a boil before the skimming is completed. It is now generally boiled down, with a gentle fire, taking care not to let it burn, to such a consistency as to form a solid cake when cold; allow it to cool gradually, with a little stirring, and dipped off into pans or other vessels. If boiled down tolerably low, and stirred all the time of cooling, it will form a dry powdered sugar; but if a superior quality is desired, it should be left sufficiently moist to drain a little. It should then be put into casks or boxes, somewhat smaller at the bottom than at the top, sixty or seventy pounds in each, and, after granulating, holes are to be bored in the bottom of the casks, through which the molasses may drain off. The sugar may then be covered with several folds of a clean thick woollen cloth, as a blanket or flannel, kept moistened with pure water, and over that a board neatly fitted to the shape of the box or cask.

After it has drained some time in this way, it may be further purified by being melted again and undergoing the same process of clarifying and draining as before. By this or some other similar process, a superior quality of sugar might be made which would compete favourably for many purposes with the best imported kinds, whereas it is well known that in the careless and imperfect manner in which the business is commonly conducted, the greater part made is scarcely fit for the commonest domestic use.

The quantity of sugar that may be made, varies greatly with the seasons; but to show that the business has been and may be of much greater

importance in an economical point of view than many may suppose, I may give the following figures from the Parliamentary statistical returns.

Quantity of maple sugar made in

U. Canada in 1842, - - - 3,699,859 lbs.
 " " 1843, - - - 3,764,243 "

To these figures might safely be added 10 or 12 per cent. for omissions in returns, making say 5 or 6 lbs. for every inhabitant of the country, at the dates given, and amounting in value, at 4½d. per lb.—that being about the rate at which it is taken in exchange for goods at the country stores—to no less a sum than say about £75,000 each year; and this is, besides, the molasses, of which a considerable quantity is always made and which is well known to be a very pleasant article for family use.

There is at the present moment, growing in Upper Canada, a sufficient quantity of sugar maple upon uncleared land and in the, as yet, unsettled regions, to afford for many years, if the business were entered into with that object and with sufficient skill in the manufacture, a supply of sugar equal to the entire amount required by the Province. I have known a single settler, with the assistance only of four or five sons and daughters, none of them grown up, make as much as 1000 lbs. of good maple sugar in one season. It is not, of course, as generally made, an article that will easily sell for money, but it is used in the family, and exchanged at the country stores for goods, which is in effect the same thing to the settler as money. Suppose a settler has 500 lbs. to use and dispose of in one season; this, at 4½d. per lb., will amount to £9 7s. 6d., a sum which, though not very large, yet as it only requires the work of a week or two, and that at a season when often not much else can be done, is well worthy the attention of a poor settler, "scant o' cash"—this latter article being seldom over plenty in new settlements and to be *economised* as much as possible.

But, Mr. Editor, though I intended to have alluded to one or two other things incidental to farming in spring, I have already exceeded my proposed limits, and must leave the other matters to the abler management of yourself and other contributors.

R. L. D.

Township of York, }
 February 27th, 1852. }

FARMER'S APPLE PUDDING.—Stew some tender apples; if the apples are juicy, they will require very little water to cook them; add to one pound of the mashed apple, whilst it is hot, a quarter of a pound of butter, and sugar to the taste. Beat four eggs and stir in when the apple is cold. Butter the bottom and sides of a deep pudding dish, strew it very thickly with bread crumbs, put in the mixture, and strew bread crumbs plentifully over the top. Set it in a tolerably hot oven, and when baked, sift sugar over.

This is good with a glass of rich milk.

It is a good substitute for pie, and can be eaten by those who cannot partake of pastry.—*National Cook Book.*

Agricultural Association of Upper Canada.

The first meeting of the Local Committee for making preparations for the Annual Exhibition, which is to take place in this city in September next, was held yesterday in the Mayor's office, and was fully attended, (there being only two members absent,) His Worship, the Mayor, in the chair.

The following gentlemen compose the Local Committee:—The Mayor of Toronto; the Sheriff of the United counties of York, Ontario and Peel; John Gamble, Esq., M.P.P., Warden; Mr. Commissioner Widder; Professor Croft; Franklin Jackes; T. D. Harris; Alex Shaw; Wm. McDougall; Geo. Denison; F. W. Cumberland; H. Y. Hind; Dr. Melville; E. F. Whittemore; and Samuel Thompson, Esquires.

It was Resolved, 1st. That the Mayor of Toronto be Chairman of the Local Committee.

2. That the sum of £25 be awarded for the services of the Local Secretary; and that Mr. W. B. Crew be requested to fill that office.

3. That R. L. Denison, Esq., be appointed Local Treasurer.

4. That the following gentlemen be Committees for raising subscriptions in the city of Toronto, towards the funds of the Association, with power to add to their number:

St. George's Ward.—F. Widder and S. Thompson, Esquires.

St. James'.—Professor Croft, and E. F. Whittemore, Esq.

St. Lawrence.—W. McDougall and H. Y. Hind, Esquires.

St. Patrick's.—George Denison and A. Shaw, Esquires.

St. Andrew's.—Sheriff Jarvis and Dr. Melville.

St. David's.—T. D. Harris and F. W. Cumberland Esquires.

5. Resolved—That the Secretary be directed to supply the Sub-Committees appointed for canvassing the Wards with subscription books, and to request the Committees to report upon the sums collected or subscribed at the next meeting of this Committee.

6. Resolved—That the following gentlemen be requested to form Sub-Committees, with power to add to their number, and if necessary to form Sub-Divisions.

1. Buildings and Grounds—F. W. Cumberland, F. Jackes, and E. F. Whittemore, Esqrs.

2. Fine Arts and Ladies' Work—F. Widder, Esq., and Dr. Melville.

3. Horticulture—Professor Croft, and S. Thompson, Esq.

4. Implements and Mechanics—Wm. McDougall and T. D. Harris, Esqrs.

5. Agricultural and Dairy Products—H. Y. Hind and A. Shaw, Esqrs.

6. Live Stock—Mr. Sheriff Jarvis and Geo. Denison, Esq.

7. Manufactures—J. G. Bowes, Mayor, and John Gamble, M.P.P., Warden.

7. Resolved—That a Select Committee of seven be appointed to ascertain where a suitable piece of ground can be obtained for holding the exhibition, and to report to this Committee at its next meeting; and that E. W. Thompson, Geo. Buckland, F. W. Cumberland, R. L. Denison, A. Shaw, W. McDougall, Esqrs., and Dr. Melville, constitute such Committee.

8. Resolved—That an application be made to the County Council and Corporation of Toronto, for a grant to the funds of the Provincial Association.

9. Resolved—That this Committee adjourn to the second Monday in April.

The Meeting was also attended by E. W. Thomson, Esq., Ex-President, the Treasurer, and the Secretary of the Association, and was characterised by a zeal and unanimity, which, if adequately responded to by the public, will render the next exhibition superior to any of its predecessors.

GEO. BUCKLAND, Sec., *pro tem.*

ON FEEDING ANIMALS.

The following is an extract of the Address of William Little, which we take from the Fifth Report of the State Board of Agriculture.

"And now having, I hope, engaged your attention to the necessity of providing suitable food for dumb animals, let me ask you the question, how do you feed your animals? It matters not how perfect the form, and how pure the blood of your colt or your calf may be, if they are not properly fed and sheltered during the winter months. By this I do not mean that they should be stuffed to the ruin of their constitutions for the sake of having the fattest and largest yearlings in the neighborhood, but I mean that all animals of this age on your farm, ought to have shelter, where they may stay during the severe storms of our northern winters; and all animals ought to have a sufficient quantity of food to keep them in a healthy, growing condition, all through the winter season. It will not do to say, you cannot afford it. As I said before, you cannot do otherwise, for just so certain as you do, you will lose money. How many of you have experienced the fact, that you have been offered more money for an animal in the fall, than the same animal would bring in the spring.

I will tell you my own course. My calves are provided with a large airy shed, in which they have plenty of room to exercise. This shed is well bedded down with straw, and kept clean. The best of hay is given them, as much as they will eat, and in addition about a quart of meal or chopped feed is given to each one every day. The result is, that I can realise in the spring, from \$15 to \$20 per head for my yearling hoifers and steers. Each of the calves will eat, in the course of the winter, perhaps \$3 worth of hay, and, in addition to the chopped feed, will cost about 1c. per day, or about \$1.50 for the winter—in all \$4.50—in the spring they are worth \$20 each. In the other place, the calf is fed on straw or refuse hay, and at three years old will, if a steer, bring perhaps \$20; if a heifer, \$12. It requires no great skill in the arithmetic to tell which is the most profitable.

Canada—Mechanics' Institute.

We find a brief report in the last *Globe* of an interesting Lecture on "The Growth and Prospects of Canada." It was delivered by the Rev. Professor Lillie in the Mechanics' Institute in this City. The audience was large and respectable,

and highly delighted with the interesting details. The lecturer said:—

"The population of Canada, at the time of its surrender to Britain in 1760, was between 66,000 and 69,275, exclusive of Indians. With the exception of a few trading ports, this population was confined to the lower part of the Province. After 1770, U. E. Loyalists coming in from New Jersey and Pennsylvania increased it somewhat. In 1791, the white population of Upper Canada was under 50,000; in 1811, it was 77,000, according to the statement of the Board of Statistics. Hence it is only forty years since it can be said to have begun to grow, if so much. By 1824 the population reached 151,097, nearly double in thirteen years; in 1834 it was 320,693—double, with 18,492 over; in 1850, when it was 791,000, it was more than ten times its number in 1825. Its growth during the last half century was shown by statistical returns to have been in a ratio about thrice that of the Free States.

By statistical returns, it was shown that Canada West, taken as a whole, has been growing for the last forty years at a rate about equal to that of Ohio, Michigan, and Illinois conjoined, for the last twenty at a rate somewhat over theirs. It was remarked, that while the growth shown to have taken place in Canada West was on the country as a whole, that of the Western States was at the expense of the other States of the Union, between which and them the disproportion was very great; to the extent of the American portion of it the immigration to the Western States is but a removal from one part of the Union to another, not an increase to its inhabitants.

By way of illustration of the effect of selecting portions of the States, as is done in the case of the West, and drawing general inferences from them, the Home and Gore Districts were selected out of Upper Canada, and their rate of growth shown to exceed that of the Western States. Indiana contains now a population of 177½ times what it was in 1800; while the Home District contains over 500 times its number of inhabitants in 1799—which were in that year 224; in 1850, 112,996. Though in different parts of the country there have been differences in the rate of growth, there has been on the whole a gratifying uniformity; examples have been adduced illustrative of this fact. Coincident with this rapid growth in population, a corresponding advance has been taking place in the quantities of land under cultivation, agricultural products, stock, &c., and in the value of land, which was illustrated by statistical returns.

A comparison of assessed values in the State of New York and Upper Canada, respectively for 1848 brought out the fact that, supposing the principle of the valuation of the same, our neighbors of the Empire-State have, with a population over four times ours, property under five times ours—New York city included.

The growth of the country was next illustrated by the contrasts it presents now to the published descriptions of travellers comparatively recent. What they describe as a wilderness, is filled with

towns and villages—many of them handsome, and not a few of them large and wealthy. The growth of a number of these—among them Toronto, Hamilton, Dundas, Brantford, London, Guelph, Belleville, Brockville, Kingston—was viewed—their present population and that of earlier periods being given. Examples of the rise of property in some of these towns were likewise given. In its trade, the growth of Upper Canada is, as proved by the comparison of the exports and imports of different periods, quite equal to its advance in other respects. Great progress has also been made in regard to the conveniences of life, as was manifested by a comparison of means of conveyance—steamboats and roads at different periods; with the increase of postal arrangements and the facilities afforded by electric telegraph.

By a comparison of statistical returns, it was shown that in proportion to population our increase from immigration is one third greater than that of the United States, which with a population fifteen times ours, receives only an immigration only ten times ours. In proportion to our population, our increase from immigration between 1820 and 1850 has been five times that of the United States.

Lecture second was devoted to the growth of Upper Canada in its higher interests, those of an intellectual and spiritual character. In 1812, Canada had five newspapers, all in the lower Province. Now it cannot have much under two hundred. One hundred and eighty, or a little above, would give us, in proportion to population a supply equal to that of the United States, which has about 2500. Generally speaking our newspapers will compare favourably with those of our neighbors as to character. The number of our book-shops with the extent of their stocks and the books stowed in libraries and found on tables, indicate a growing taste for reading.

On all hands a growing interest is manifested in the subject of education. Our schools, and school-masters and pupils are increasing rapidly. Sums largely increased are being paid for education; the people in many parts voluntarily taxing themselves for its support. The character of the education given is also improved. In numbers of places, too, larger schools are being introduced with a number of qualified teachers, which admit of proper classification of pupils and division of labour on the part of masters. Schools of this sort have been seen by the lecturer in successful operation in Brantford and London. The Normal School is rendering the country great service; as is also the Chief Superintendent of Common Schools, by the diligence, singleness of purpose and industry with which he is devoting himself to his noble employment. The number of grammar schools is also increasing, and the number of Mechanics' Institutes. Now, too, the Provincial University with its staff of well qualified Professors, to which addition is being made, offers its advantages to the youth of the country at a price little more than nominal. Trinity College, likewise, though a denominational institution, adds to the means of education in the higher departments. It is a fact specially cheering that the

means of religious instruction and worship are increasing at a rate fully equal to the growth of the population. This was shown by comparison of the statistical returns of different periods. In civil arrangements and the application of correct principles to the government of the country, it is believed improvement will generally be admitted to be taking place. Our municipal institutions are working, on the whole, satisfactorily—improving the country and educating the people.—The past growth of the country, with its extent, its soil and climate, and the facilities for intercommunication afforded by its rivers and lakes, were next adverted to. Those, he said, in connection with the character of its inhabitants, who were vindicated from the imputation of want of enterprise, afforded pledges of the future greatness of the country. The lecture closed with an exhortation to Canadians to do their duty towards the development of the resources of the country.

HORTICULTURE.

THE SCIENCE AND PRINCIPLES OF GARDENING.

No. 3.

THE AGENTS WHICH AFFECT PLANTS.

1.—HEAT.

Before ever sap can be extracted from the soil, or set in motion afterwards, it must be acted upon by heat, which is the prime agent in promoting the growth of plants. It is present both in the soil and in the air, and is everywhere diffused. In proportion to its prevalence, (other conditions being available,) the growth of plants will be either rapid or extensive, or the contrary. This accounts for the comparative dormancy of plants in winter or cold weather. The suspension of the flow of sap at the beginning of winter is erroneously ascribed to the descent of the sap at that season, when, in fact, it is solely occasioned by the absence of a sufficient degree of light and heat. If these and moisture were duly present, perpetual growth would be the result, as it is, except during the dry season, in tropical climates.

Heat is distributed pretty equally among all things on the earth's surface, by a process somewhat similar to that of water, always finding its level, and which is termed radiation. Thus, it will invariably pass from a warm substance to one near it which is colder and all the more rapidly, if the two things are porous and in contact. The warm ground, for instance, will give off its heat into the air, till the heat of the ground, and that of the air become equalized; but the air will not communicate its heat so readily to the ground, as it is a property of heat to be continually ascending, and passing off into space.

As plants derive their food mainly from the soil, its heat should be in some measure correspondent to that of the atmosphere, or they will increase in length but not in strength. This is one reason why cold wet soils are generally unsuitable. The roots do not grow in proportion to the branches and leaves.

Cold is merely a state in which, by the process of radiation, heat is absent. Plants always possess a certain proportion of heat, which is necessary to their vitality; and soils are in winter usually warmer than the air. It is in preventing this heat from flying off into the air, and not in imparting fresh heat, that the true philosophy of shelter consists.

2.—LIGHT.

Without light, heat would merely expand the parts of plants; light must elaborate the sap into pulp. Plants that are excluded from light become drawn and weak, as under the shade of trees or walls, and in dwelling-rooms. Even grass, which is endowed with such a wonderful power of life, dies under the thick shade of trees. Plants naturally turn to the light and grow towards it, their tissues becoming more elaborated and contracted on the side from which light is supplied; hence their feebleness and one-sidedness. If plants be placed in a warm cellar, where light is only supplied from a single aperture, they will always grow in that direction if the rays can reach them.

There can be no fruit or flowers without light, because none of the parts of plants can be fully and properly matured; and the flower or fruit-bearing process is the result of light, the last stage of maturity. Greenness and all high colours are the result of light; leaves have only a sickly yellow hue without it. But it must be remembered that flowers, once developed, will fade sooner when subjected to strong light, which will rather throw them into fruit. When flowers, therefore, and not fruits are desired, a little shading, after the first blossoms have expanded, will prolong their beauty.

The exclusion of light produces *blanching*, as in the familiar case of lettuce, endive, and celery; but it gives additional succulence and crispness, and tenderness, as with the sea-kale. All vegetables, therefore, that are used for their juiciness, or eaten raw as salads or in which much fibre would be a defect, should be grown quickly, with plenty of warmth and comparatively less light.

Want of light is often the real cause of evils which are popularly ascribed to want of air, though both combined may occasionally be acting. Light may, however, be prejudicial to plants in certain stages, as after fresh planting or potting, when it stimulates them more than their crippled roots will bear. Dull weather is, therefore, best for both potting and planting, and a little shade after either process may often be beneficial.

3.—AIR AND GASSES.

Air is as necessary to plants as to human beings, since they both exhaust it from its health-producing influences, and probably both vitiate it to some extent, as far as themselves at least are concerned.—There can be no general healthiness or robustness without fresh air. The roots of plants require to be within reach of it; consequently, where they are tolerably near the surface, and in porous soil, the plants are much more fertile. Very deep soils, which attract the roots away from the influence of air, tend only to the production of leaves and branches. Air fills the soil as well as the atmosphere, and exists in plants in little cells, which appear provided expressly for it.

It is said to be valuable as a mechanical agent in agitating the different parts of plants, and keeping them healthy and hardy, in helping off their watery evaporations, and in removing impurities. But it is most useful in conveying gasses to them, as a very considerable quantity of gaseous food of plants resides in the atmosphere, and is communicated to them directly through the pores, or through the soil to the roots: besides being precipitated upon them, or forced into the ground for them by rain, snow, &c. Oxygen and nitrogen, the food of plants, are the chief constituents of the atmosphere. Carbon, also, which is essential to plants, is derived both from the air and the soil. It exists most abundantly where population is densest, and the various processes of life most

thickly carried on. Plants and tress in large towns must, therefore, tend materially to improve the air, by relieving it of its carbon.

A close frame or hand glass, where little or no fresh air is admitted to dry up the juices, and that which it contains is kept slightly moist, is the best condition for newly potted plants or cuttings. Quiet moist weather is likewise always best for planting, as winds seriously dry the roots of plants during the operation, and assist in abstracting too much of their juices after they have been removed.

Plants convert the oxygen and carbon which they receive from the soil and air into carbonic acid, which they exhale at night. This being a deadly and dangerous gas to human beings, plants or flowers are not considered healthy in a sitting or bed-room during the night. In the day they give off oxygen, especially in the morning, which is reputed to render the morning air so fresh and exhilarating. They are very useful in absorbing from the air the carbon which is so injurious to animal life, and they purify stagnant water in the same way.

PROTECTING FRUIT TREES FROM MICE.

MR. EDITOR:—I should be glad to get some information from yourself, or some of your horticultural correspondents, on the best method of protecting fruit trees from the depredations of mice which constantly gnaw off a large ring of bark, and thus destroy the vitality of a tree which we have perhaps been carefully rearing for a number of years. Mr. Downing, in the first edition of his work on Fruit Trees, recommends the use of tar, but in the late editions I find this statement is altered, and other more mechanical contrivances are advocated, such as treading down the snow, forming hillocks of earth round the base of the tree, or even using lime. In a late number of the *Horticulturist*, too, the use of tar is deprecated, unless employed with care.

As the injurious effects of the tar can only arise from its coming into immediate contact with the outer bark, by which a portion may possibly be absorbed into the plant, and having a number of young trees in my garden, some of which suffered rather severely last winter from the nuisance above mentioned, I have tried the following expedient, on the efficacy of which I should like to have your opinion.

I prepared a number of slips of coarse canvas, 18 inches by 10 or 12, and wrapping them round my young trees close to the ground, fastened them with a few twists of twine. I then besmeared each with a good coating of coal tar. The bark is thus preserved from actual contact with the tar itself, and the clothes, which are put on with very little trouble, such as no one would grudge to a few pet trees, can easily and readily be removed in the spring.

The plan may seem a little troublesome, but each tree will not take five minutes in covering and smearing, not longer than would be required for the other processes recommended; and, if we can prevent the injurious action of the tar on the trees, I have no doubt that it will be found the most effective preservative.

When the proper time comes, I will send you an account of the result of my experiment.

Yours truly,
Toronto, Feb. 21st, 1852.

H. C.

SCIENTIFIC.

CARBONIC ACID'S REPLY TO MR. RUTTAN.

MR. EDITOR:—I take the liberty of replying, as quickly as possible, to the letter of your somewhat unnecessarily irate correspondent, as contained in the February number of the *Agriculturist*. In so doing, I may be permitted to preface my letter with a few remarks on the style of his communication, and on the line of argument adopted; in both of which it is to be hoped, for the sake of the rising generation, he may not find many imitators.

Mr. Ruttan's letter teems with quotations from printed works on chemistry, ventilation, &c., a circumstance which seems to indicate that Mr. R. is not always so perfectly consistent as such an accomplished logician might be expected to be—for he expresses himself as strongly opposed to *book learning*, and expatiates on the superiority of brains, and originality of thought. The latter qualities do not seem to have assisted him very materially in his communication, further than in inducing him to shirk the question at issue, wilfully to pervert my statements and misquote his own, and last, but not least, in rendering him utterly incapable of comprehending the meaning of the very authorities whom he quotes.

In paragraph No. 2, Mr. Ruttan blames me for writing under a "fictitious name, and for attacking him in the dark"—forgetting that my letter was merely a correction of statements and not a personal attack, as his article most assuredly is; and overlooking the semi-jocular, and I think I may say good-natured, style of the communication, a tone which it would have been wiser for him to have imitated, rather than have indulged in the acrimonious invective and offensive personalities which pervade his reply. From the extreme virulence which he exhibits, one would almost be inclined to believe that the learned gentleman must be exceedingly *raw* to wince at such a trifle.

I shall not allow Mr. Ruttan's satire to drive me from my incognito; I do not believe it is so profound but what his acuteness has already penetrated the mystery, and in any case, you, Mr. Editor, are at perfect liberty to furnish him with the name of your correspondent if he should desire it. I would merely add that if my incognito is to be considered as an excuse for his very savage but perfectly innocuous *pokes*—I must not be blamed for retaliating in the same spirit.

Mr. Ruttan's style of defence consists partly in misquoting those portions of his own statements which I criticised, and then attacking me as if I had found fault with the corrected one. Thus in paragraph 9, he states that I deny that carbonic acid is heavier than air, which is not true, and that I also deny the possibility of its being poured out of a tumbler—which is equally wanting in veracity. In his original letter he says, "so nearly does it sometimes approach to the density of water" whereupon I proved this assertion to be an exaggeration, water being several hundred times heavier. The numbers adduced by him

have a bearing on the corrected, but none whatever on the original passage.

Another plan adopted by Mr. Ruttan is to take little or no notice of my correction of his errors respecting carbonic acid, but to accuse me of denying the benefits of ventilation. A more unjustifiable proceeding can scarcely be imagined as the sole reference in my paper to ventilation is contained in a compliment to Mr. Ruttan. I most fully agree with him and the authorities he quotes in the great importance of ventilation, but that has nothing to do with the subject at issue, viz., carbonic acid. Mr. Ruttan has jumbled up miasm, carbonic acid and offensive gases, until it appears that he himself does not know one from the other. In fact, in paragraph 5, he says "if it be not carbonic acid, it certainly is SOMETHING."

Comment on this is unnecessary—it is slipping out of a discussion with a vengeance. I might here fairly conclude my letter; for, to fight against such arguments as that, is but combating a shadow; but there are some few points in Mr. Ruttan's communication which I should desire to answer, even at the risk of occupying more space in your valuable journal than the subject deserves.

In paragraph 6, my learned friend parades his own logic and depreciates mine, leaving out of consideration several circumstances which materially diminish the validity of his immaculate reasoning. There is rather more carbonic acid in the upper regions of the atmosphere and about mountains than at the surface, as has been shown by Gay Lussac, Saussure, and others, the reason being that which I have already stated. The diffusion of gases is not instantaneous, but takes some time to be thoroughly effected, and hence it is natural that air at a height of 10 or 20,000 feet should contain rather more carbonic acid, and will always do so unless the supply of carbonic acid, which is being carried up by the ascending current, be stopped. I repeat, that, if places filled with carbonic acid were left freely exposed to the air and not receiving fresh additions of the gas, they would soon become perfectly healthy. The Grotto del Cane (*Grotto del Canes*, in the plural, according to Mr. R.) is not freely exposed to the air, and in it as well as in the Valley of Death, the gas is mixing with the air as fast as it can; but, owing to its pouring rapidly out of the earth, and its high specific gravity compared with air (not water) and its consequent comparative slowness of diffusion, a stratum always remains over the surface of the ground. I assert that Mr. Ruttan's statement that gases, when once mixed, will separate, is utterly and wholly incorrect, as every beginner in physics knows full well.

Paragraph 18 requires no answer, as it contains little more than some strong wholesome abuse; but, in 20, Mr. R. empties upon me the vials of his wrath for being so excessively accurate, *even to the 1-10,000th part of a grain*. In no part of my communication have I even mentioned such a quantity, but that is of no consequence to Mr. Ruttan, who does not stand upon a little misrepresentation when he wishes to make a *poke*. He supposes that I am "a practical chemist, what we call a learned man" (an entirely new and original definition) and advises me to trust less to

my books and more to my judgment and every day experience. If I be what he supposes, my every day experience will teach me that the numbers I mentioned are the correct ones, and no others are in accordance with fact—my judgment will have little to do with the matter.

The latter part (a quotation) of this paragraph is unhappily chosen, as it militates directly against Mr. R. and proves what I have stated. The most accurate chemists have been unable to detect any difference between the composition of air taken from hospitals and crowded theatres and that from freely exposed places. Mr. Ruttan refers all the ill effects of such air to carbonic acid (I beg his pardon—or *something*) and yet a mere trace would not escape the notice of the veriest bungler that ever executed a chemical analysis. Let it be remarked that I have never made any reference to the presence or absence of miasm or malaria, that mysterious agent which, it cannot be doubted, is the cause of innumerable diseases, although its properties are such that the most expert analysts have failed to detect its presence or ascertain its nature, even when their attention was particularly directed to it; but miasm is not carbonic acid, and if Mr. Ruttan criticises my remarks on the one as if applying to the other, he is only continuing that system of misrepresentation (I can call it nothing else) by which he vainly hopes to render me ridiculous in the eyes of your readers.

In paragraph 14 he quotes Chambers' Chemistry to prove that carbonic acid accumulates in wells, caverns, &c. Had Mr. Ruttan been able to understand plain English, he would have seen that the very allocation of the words shows that the writer of that excellent treatise ascribes the accumulation of the gas to the very same causes that I mentioned, and not to a *separation* as according to Mr. R.'s theory.

If the quantity of gas in the Grotto and in the Valley of Death be owing to its separating from the air, why, in the name of all that is wonderful, are not such phenomena to be observed on every part of the earth's surface?

But, Mr. Editor, I have already occupied too much space, and you must be as heartily tired of the subject as I am. There is not one single paragraph in Mr. Ruttan's communication which could not be thoroughly picked to pieces, excepting perhaps some of those on ventilation, which, as I said before, has nothing to do with the subject under discussion, and on which I have never ventured any remarks.

In conclusion, I would observe that I cannot agree with your correspondent in courting a further discussion of the subject, at least in the manner in which it has been as yet conducted. Let him bring to the discussion some slight adherence to facts and principles, some moderate acquaintance with the subject under consideration, and I will be perfectly willing to continue the argument; I shall be as ready to receive correction and information as I am desirous to impart it, but under the present circumstances I shall beg to decline any further correspondence on the subject of,

Mr. Editor,
Your still surviving correspondent,
CARBONIC ACID.

As the discussion, so far, of the character of Carbonic Acid, has by some means or other induced an amount of caloric, which, if allowed to accumulate, might eventually occasion a very undesirable and inconvenient expansion of this gaseous subject;—we hope that Mr. Ruttan (who is entitled, by the common usage of literary warfare, to a rejoinder) will not allow the matter to terminate without enlightening us and our readers on what after all is by far the most useful and important part of the whole question, viz., the *modus operandi* of his system of ventilation. The somewhat jocose remarks of his aerial antagonist were not, we feel certain, intended to apply to Mr. Ruttan's *method* of ventilating, but simply to correct, by a little pleasantry, a few inadvertent mistakes. That Carbonic Acid, with his extensive and accurate knowledge of physical science, can essentially aid Mr. Ruttan in carrying out his important and most praiseworthy objects, we are quite confident, and our pages shall always be open to their communications.

A Lecture on Geology.

Dr. Antisell delivered the second lecture of his course on geology, a few evenings ago, in Clinton Hall, New York, before a numerous and intelligent audience. The subject was "The Carboniferous Period of the Globe—the Nature and Origin of Coal."

The Doctor commenced by observing that it was impossible within the space of four lectures, to present any thing like a correct and ample view of the present position of geological science. These lectures had for their object rather to stimulate than to gratify curiosity; and the periods comprised within the four lectures, to which the course was limited, were selected, not because they had any interconnection: but rather that by the contrast which they afforded, panoramic sketches of a former world were presented, and the mind of the hearer dwelt with more satisfaction upon a few epochs, the characteristic life of which was clearly placed before him, rather than in a condensed summary of progressive changes and repeated developments of new species. In the first lecture the primitive condition of the globe was portrayed—its passage from a chaotic mixture of land and water, with a hazy and probably a more elevated atmosphere, to a condition in which the land had arisen to a considerable elevation above the water level, producing thus greater depths of ocean, and the more powerful influences exerted by water in motion. At the close of that period, life dawned on the creation; and it was almost impossible to say whether the first traces of life belonged to the animal or vegetable kingdom. The total life, however, was marine, neither the earth nor the atmosphere appearing to possess the conditions necessary to support life. The chief inhabitants of the deep were molluscs and crustaceans, and towards the close of the silurian period, or that in which the New York system of rocks were deposited, Fishes commenced to appear, differing in organization from those who now inhabit our seas. At the present time, quite a new creation was presented, totally distinct from the pre-

ceding, and separated from it by a long and well marked interval of time, in which were deposited by what is termed shore action, those thick and extensive beds of reddish grit, commonly known as the oldest sandstone; and whose remarkable organic development was in the abundance of fishes. This rock, of which many of our city churches were built, constituted the great mass of the Catskill Mountains, and was abundant on the Pennsylvania and New York borders. Overlying these, were found masses of limestone rock of great thickness, very fossiliferous, and impregnated with vegetable matter. The depth of this bed did not average more than 800 yards, including beds of sandstone and shale accompanying the limestone. Above these laid other beds of sandstone and shale, with immense deposits of coal, and layers of ironstone, irregularly stratified, to which might be added deposits of fresh water limestone. The depth of those approached 1000 yards, the latter series had received the name of coal measures, and the former that of mountain limestone; and both formations had received the title of carboniferous from their containing so much vegetable matter, the remains of the flora of that epoch. In fact, during the period under consideration, two new features were presented, as predominant, one being the production of terrestrial vegetation; the other, the formation of extensive beds of limestone under the sea. By the agency of the coral animal, Dr. Antisell here described the formation of beds of rock by the coral insect, and illustrated this position of the subject by elaborate drawings, and alluded to the different conditions of the globe as to temperature which existed at the former and present periods, are evidenced by the presence of coralline limestone, even in frigid latitudes, while the present growth of coral was confined to the tropics. Coal was generally found in beds having a slight curve, and those were, on that account, generally termed coal basins. Many beds or basins now distinct, might have been deposited contemporaneously over a large area, and since their deposition had been isolated and altered, by upheaval and volcanic action. The extent of the Ohio, Illinois, Michigan, Virginia, and Pennsylvania coal basins, were pointed out in the diagrams, with the different characteristics which peculiarize the coal fields of this country, and those of Europe. The position which the seams of coal occupied, and the muddy and sandy beds which immediately surrounded the coal, and which contained leaves of ferns, and other like plants, with the crusted trunks of forest trees, were then described. The great depth of some coal beds was pointed out—that near Bettingen being 22,000 feet below the sea level. The traces of vegetation found were those of plants belonging to the fern tribe; also, grasses, yuccalike, liliaceous plants and palms, with pines and zamias, in all, over four hundred species. The varied appearance of those plants was illustrated by drawings and specimens, to which the lecturer referred. The similarity of this flora to that of Australia, and of the plateau of Mexico was clearly demonstrated, and the climate of that epoch to have an insular and intertropical one. Vegetation was excessively profuse over the whole globe then, resembling in the excessive luxuriance of its forests, tropical South America, as described by Humboldt. Dr. Antisell then passed on to different views, with regard to the manner in which the extensive deposition of coal plants was produced. In very many cases they were the result of accumulated drift wood, similar to what occurred in our southern rivers, where the timber floating down became impacted and water logged. It would only require to be covered over with mud and sand, and subjected to pressure for a long period of time, to be converted into coal. In other instances, it was probable that the trees grew on a spot where the coal bed now existed, and that the

land becoming submerged, drift wood was imparted among the standing trees, and both combined to form the future seam. The great height to which many of these coal plants attained was remarkable, there being seams of the lepidodendrum—a plant allied in form to the modern club moss—found, which were fifty, sixty, and even seventy feet high. None of these mosses, even in the warmest region, ever attained more than the size of a shrub. So it was with the equisetum, or mare's tail, at present an humble plant but in the fossil species a gigantic tree. All the plants which were represented by similar species existing now, attained at that period a more ample development, bespeaking a warmer and more equable climate. The asterophyllite plants were rather abundant in the Nova Scotian and Apalachian coal, belonged to a family of which there were now no living representatives. The varieties of coal were next alluded to. It was shown how it was possible for anthracite and bituminous coal to exist in the one bed, the difference being in the loss of bituminous matter sustained by the former, this loss being produced by the close proximity of heated mineral matter. Thus, an upheaval of green stone, or any volcanic rock, or the close proximity to the scene of volcanic action, would result in the coal beds being atered from their original position, bent, and even fractured in many places, producing faults or dislocations. The advantages of these to the miner was exemplified. By the proximity of volcanic action, the coal beds themselves became heated to that point that their bitumen was driven out, leaving behind a hard, carbonaceous residue, or coke, which was termed anthracite. In Pennsylvania, those portions of the coal fields lying close to the Alleghanies, had their bitumen driven out by this cause, and were anthracite, while, as the bed travelled westward, the amount of bitumen gradually increased, until, in the neighborhood of Pittsburg, it retained its full quantity of bitumen, and resembled the unaltered basin of any European coal field. Dr. Antisell, here went into some particulars of the extent and supply of American coal fields, and the enormous time it would take to consume their contents. It might be asked what was the use of this abundant vegetation, seeing that neither the land nor the air, during the larger period of its growth, seemed to be in a suitable condition for sustaining animal life. The chief office of vegetation at the present day was was to purify the air, and render it suitable for the support of animal life. This was its office. Then, also, and from its greater diffusion, it was evident that the necessity for purification was greater then; there was more carbonic acid gas in the air at that time—a gas eminently fatal to existence when breathed—and to purify the air and render the earth a suitable habitation, was the allotted duty of this remarkable flora. This duty was accomplished by the fission of the carbon of the gas into the wood of the tree. Every forest which grew drew more of this noxious gas out of the atmosphere, until, in process of time, it was reduced to its present amount—a quantity which in no way interfered with animal life. The properties of this gas were then shown by a few experiments—its incapacity to sustain a light burning, or to support life, was proved—and its greater abundance in the atmosphere of a more ancient period accounted for the fact of the non-existence of any tenants of either the forest or the air. The animal life of this period was then alluded to—the abundance of molluses, conchifers and brachiopoda, and the peculiarity of the fishes which tenanted the seas. The cotemporaneous working of the coral insect, aiding the terrestrial vegetation to withdraw carbonic acid from the air, showed a wonderful unity of design in preparing the globe for land inhabitants, and laying up, by that means, a magazine of fuel and limestone to subserve the future wants of

man. Dr. Antisell then called attention to the Mosaic account of the creation, and the harmony with which the succession of events, as described there, tallied with the teachings of science. Both of them pointed to a chaotic mass of land and water—then to the production of clouds in the atmosphere, and a line of separation between these and the water on the surface of the globe—then to the appearance of masses of dry land, and the formation of deep seas, or the “gathering together of waters,” as it was termed by Moses—then came the growth of grass, herbs, and trees. In these points, science and the Mosaic account harmonized, in the order of appearance of the animal life—first, inhabitants of the seas; then those of the air; and, lastly, those of the land. The disagreement laid in the time allotted for their development. This question of time, Dr. Antisell said he would revert to on a future occasion. He was listened to, throughout his discourse, with breathless attention, and his plain and unaffected demonstrations of the science of geology elicited much applause. The lectures of Dr. Antisell must be regarded as masterly and popular expositions of this interesting branch of science, and may well contrast with the flimsy productions with which the public have been recently supplied.

Keeping Time with the Telegraph.

We witnessed a curious experiment yesterday at Morse's Telegraph office, which we had before heard of but had never seen. It was nothing less than the ticking of the clock in New York city heard and seen at this end of the line. The experiment was most perfectly performed, the regular vibrations of the pendulum in New York being registered on the paper at precise intervals, and heard by striking the pen-lever at the same instant.

This is done by an operation similar to telegraphing itself. It is well known that the bringing in contact of the positive and negative poles of the batteries, forms what is termed a circuit and produces characters at the pleasure of the person so bringing them together. One of these wires is connected by a very fine wire to the pendulum of the clock, partaking of its motion; the other is fastened to the side of the clock, so that the pendulum shall strike it in swinging back and forth. When the pendulum strikes, the two wires being brought together, a circuit is formed and a stroke of the pendulum makes a dot upon the paper, and this is repeated as often as the pendulum strikes the wire in the side of the clock; so that the ticking of the clock in New York is heard even more distinctly in Buffalo than in the office where it is placed.

Last evening a similar experiment was successfully tried between Bangor, Me., and Milwaukee, Wis., by connecting the wires of Morse's and Speed's lines at this point and then proceeding as mentioned above.

A clock ticking at one place, and being heard between 2 and 3000 miles away, is certainly something curious in this age of marvels.—*Buffalo Express*.

HOME-MADE GAS.—Mr. Bower, of St. Neots, Hants, (England,) has constructed and patented an apparatus for making gas from coal, so small as to be adapted for private houses and inns, where ten or more lights are required. It is enclosed in an iron frame occupying but little space, and may be managed by the errand boy. Beautiful gas is said to be made by his plain at the paper manufactories of Messrs. Cowgood, Cambridge, at a cost of one shilling and sixpence per 1,000 cubic feet. The patent consists of setting hydrogen gas from steam (generated by the

same fire that heats the retort,) and converting that vapor into gas which otherwise would be converted into tar.

GERMAN SAUSAGES.

Eminent Physicians have stated it as a well known fact, that the bodies of animals which are diseased are capable of communicating fatal diseases to the human species; and Dr. Paris observes, that experience has shown that such animal poison is particularly energetic in those parts that are commonly called offals, in which term are included the intestines. To account for the deleterious changes of which those parts appear by this to be occasionally susceptible, it is not in the least necessary to suppose that the animal died in a state of virulent disease. We are informed by Dr. Kerner, of Wurtemberg, that the smoked sausages which constitute so favourite a repast in his country, often cause fatal poisonings. In one instance thirty-seven persons died out of seventy six who had eaten them; and though the most able chemists analysed the meat, no trace of any known poison could be discovered. The following details respecting this remarkable fact are from Professor Graham's work on Chemistry. In Wurtemberg the sausages are prepared from very various materials. Blood, bacon, brains, milk, bread and meal are mixed together with salt and spices; the mixture is then put into bladders or intestines, and after being boiled is smoked. When these sausages are well prepared they may be preserved for months and furnish a nourishing savoury food, but when the spices and salt are deficient, and particularly when they are smoked too late or not sufficiently, they undergo a peculiar kind of putrefaction, which begins at the center of the sausage. Without any escape of gas taking place, they become paler in colour, and greasy in those parts which have undergone putrefaction, and they are found to contain pre-lactic acid or lactate of ammonia, products which are usually found during the putrefaction of animal and vegetable matters. The death which is the consequence of poisoning by putrefied sausages succeeds very lingering and remarkable symptoms. There is a gradual wasting of muscular fibre and of all the constituents of the body similarly composed. Sausages, in the state here described, exercise an action upon the organism, in consequence of the stomach and other parts with which they come in contact, not having the power to arrest their decomposition; and entering the blood in some way or other; while still possessing their whole power, they impart their peculiar action to the constituents of that fluid. Similar effects have occurred in Paris, and it has been conjectured that animal matter in peculiar states of disease or decomposition may constitute an actual poison, hitherto not understood, and only evinced by casual effects. Sir Benjamin Brodie remarked that on several occasions he has met with evidence of the acrid and poisonous nature of dog's meat, as sold in the streets of London, which manifested itself by producing ulcerations of a peculiar and distinct character on the hands, accompanied by swellings in the axilla (armpits).

NAYSMITH'S PILE-DRIVING MACHINE.—We witnessed on Saturday the first introduction of this machine in London, and we are indebted to Messrs. Hutchings and Co. of St. Mildred's-court, for being present at one of the most interesting and enterprising inventions that has been brought into action for superseeding the old method of driving piles. The works under the superintendence of Mr. Rendel, the engineer, are at the West India Docks, and a pile of 25 feet in length was driven into the ground in the short space of eight minutes, which by the old process

would have taken three hours. The engine is capable of making from 60 to 70 strokes a minute. It is scarcely necessary to point out to our readers the great improvement that has taken place in this department of machinery. It will be at work for some months, and we should advise all persons that are interested in machinery to pay a visit to the docks, to form their own opinion of its merits.—*Globe*.

THE PATENT WIRE TYPE COMPANY.—It is a somewhat extraordinary circumstance, that while such gradual but vast improvements have been made in the press, the type itself should have been left almost without modification for four centuries. It is gratifying, however, to find that this evil is likely to be remedied. A company is being formed for carrying on the manufacture of wire type, which, from its durability, and the clear and distinct nature of the letter, must in no long time entirely supersede the soft cast type at present in use. The proposed process of manufacture is this:—Wire (copper, brass, or zinc,) prepared of the proposed size or form, is rapidly converted into type; the machine straightens the wire, and cuts it off the required length; at the same moment a steel die strikes one end of the wire, and raises the face of the letter upon it, which, from the character of the metal employed, and the powerful compression to which it is subjected, is produced of a durability sixty times that of ordinary cast type. The type is produced at the rate of 100 per minute, with little or no waste in the manufacture. Complete machinery was exhibited in the Crystal Palace, where type was made and finished in the most perfect form, and the prize medal was accorded to the invention. In the list of directors of the above company, we perceive the name of Mr. Hensman, C.E. whose valuable services at the Great Exhibition, in the control of the machinery department, were so generally admitted, and whose name is a guarantee as to the value and genuine character of the proposed undertaking. From using type, we can appreciate the benefits offered by the new invention, which must prove highly profitable to the shareholders.

THE FORMATION OF MOUNTAINS, AND THE PRESERVATION OF FLESH.—Prof. Gorini, who is professor of natural history at the University of Lodi, made recently before a circle of private friends, a remarkable experiment illustrative of his theory as to the formation of mountains. He melts some substances, known only to himself, in a vessel, and allows the liquid to cool. At first it presents an even surface; but a part continues to ooze up from beneath, and gradually elevations are formed until at length ranges and chains of hills appear, exactly corresponding in shape with those which are found on the earth. Even to the stratification the resemblance is complete, and M. Gorini can produce on a small scale, the phenomena of volcanoes and earthquakes. He contends, therefore that the inequalities on the face of the globe are the result of certain materials, first reduced by the application of heat to a liquid state, and then allowed gradually to consolidate.—In another and more practically useful field of research the learned Professor has developed some very important facts. He has succeeded to a most surprising extent in preserving animal matter from decay, without restoring to any known process for that purpose. Specimens are shown by him of portions of the human body which, without any alte-

ration in their natural appearance, have been exposed to the action of the atmosphere for six or seven years; and he states that at a trifling cost he can keep meat for any length of time in such a way that it can be eaten quite fresh. The importance of such a discovery, if on practical investigation it is found to answer, will be more readily understood when it is remembered that the flocks of sheep in Australia are boiled down into tallow, their flesh being otherwise almost valueless, and that in South America vast herds of cattle are annually slaughtered for the sake of their hides alone.—*Times*.

KEROSENE GAS IN NOVA SCOTIA.—In the Nova Scotia Legislature the Hon. Provincial Secretary presented the report of Dr. Gesner on the subject of lighting the Nova Scotia Light Houses with Kerosene Gas. The Light House at Meagher's Beach had been placed by government under his charge. He has illuminated it at a charge of £19 per annum, making a saving of £50 a-year. Dr. Gesner has proposed to furnish the other houses in the same manner, so that a saving of £15,000 a-year would be effected by his means. The Dr. states that he can erect lights along the shores, without expensive houses, by raising poles and placing the lights on the top of them.

Hon. Mr. Johnston proposed that it should be referred to a special committee, with the Hon. and learned member opposite for its chairman. If he wished to have a simple and clear illustration of the benefits of the Kerosene Gas, he had only to go across in the Dartmouth steamer, and inspect the works of the Steamboat Company for procuring their gas. The thing was quite simple, and not only had they their buildings and lamps on the wharf lighted with it, but by a portable India Rubber bag it was brought into the boats, and they were lighted with it every night. The works were managed with such ease, that they were now under charge of a common labouring man.

The Report was referred to Messrs. Fraser, Marshall, Killam, James Coffin, Cowie, John Munro, and Jost.

We perceive that, in connexion with this light, the Doctor proposes to introduce one or more illuminated letters to each beacon, visible beyond the reach of danger, and thus capable of letting the mariner know his whereabouts in a manner not to be mistaken. This is an excellent idea.

People have been asking Dr. Gesner if his kerosene gas is not dangerous, and he has replied that it is no more dangerous than other gases. Gas has been used for light-house purposes on the coast of France, and answers the end admirably.

KNITTING MACHINE.—There is a knitting machine in operation in Philadelphia, which knits three hundred and eighty stitches at each turn of a small crank, which crank may be easily turned by hand from one hundred, to one hundred and fifty revolutions per minute, or at the rate of about three million stitches per hour.

Poetry.

Keep the Heart as Light as You Can.

We have always enough to bear—
 We have always a something to do—
 We have never to seek for care
 When we have the world to get through!
 But what, though Adversity test
 The courage and vigour of man,
 They get through misfortune the best
 Who keep the heart light as they can.

If we shake not the load from the mind,
 Our energy's sure to be gone;
 We must wrestle with Care—or we'll find
 Two loads are less easy than one!
 To sit in disconsolate mood
 Is a poor and a profitless plan;
 The true heart is never subdued,
 If we keep it as light as we can.

There's nothing that Sorrow can yield,
 Excepting a harvest of pain;
 Far better to seek Fortune's field,
 And till it and plow it again!
 The weight that *Exertion* can move—
 The gloom that *Decision* can span,
 The manhood within us but prove!
 Then keep the heart light as you can.

CHARLES SWAIN, in the *British Journal*.

A DANGEROUS POSITION.—I have said the Mur de la Cote is some hundred feet high, and is an all but perpendicular iceberg. At one point you can reach it from the snow, but immediately after you begin to ascend it, obliquely, there is nothing below but a chasm in the ice more frightful than anything yet passed. Should the foot slip, or the baton give way, there is no chance for life—you would glide like lightening from one frozen crag to another, and finally be dashed to pieces, hundreds and hundreds of feet below, in the horrible depths of the glacier. Were it in the valley, simply rising up from a glacier moraine, its ascent would require great nerve and caution; but here, placed fourteen thousand feet above the level of the sea, terminating in a icy abyss so deep that the bottom is lost in obscurity; exposed, in a highly rarified atmosphere, to a wind cold and violent beyond all conception; assailed, with muscular powers already taxed far beyond their strength, and nerves shaken by constantly increasing excitement and want of rest—with blood-shot eyes, and raging thirst, and a pulse leaping rather than beating—with all this, it may be imagined that the frightful Mur de la Cote calls for no ordinary determination to mount it. Of course, every footstep had to be cut with the adzes: and my blood ran colder still, as I saw the first guides creeping like flies upon its smooth glistening surface.—*Albert Smith's "Mont Blanc," in Blackwood's Magazine.*

A PRAIRIE.—One of the most novel as well as enchanting scenes in nature is the prairie, or delta, extending to a distance of many miles between the two great rivers. It is for a considerable portion of the year one sea of flowers, one wide region of fragrance: and its features differ from those of any lands in any other country. Not a tree is to be seen except upon its outer edge, and the blue horizon meets it everywhere, forming a long straight line, without the least appearance of irregularity or undulation. As you cast your eye over it, it is all one series of decep-

tions. Sometimes, owing to a particular state of the atmosphere, or the position of the sun, distances and objects are increased or diminished; like the vagaries of the phantasmagoria; things that are near will appear as if at a great distance, and those at a distance at other times seem as if you could almost touch them. Now a bird will seem as if touching the sky with its head, and anon the herds appear like an assemblage of insects.—*America Described.*

AN EXAMPLE FOR YOUTH.—Those young men whose evenings are spent in dissipation and idleness, may learn a wholesome lesson from reading the following:—"I leaned grammar," said William Cobbett, who became an eminent printer and writer, "when I was a private soldier on six-pence a day. The edge of my guard bed was my seat to study on; my knapsack was my book-case, and a board lying on my lap was my desk. I had no money to buy candles or oil; in winter it was rarely that I could get any light but that of the fire, and only my turn even at that. To buy a pen or a sheet of paper, I was compelled to forego a portion of food though in a state of starvation. I had no moment at that time that I could call my own, and I had to read and write amid the talking, singing, whistling and bawling of at least half a score of the most thoughtless of men, and that, too, in hours of freedom from control, and I say, if I, under circumstances like these, could encounter and overcome the task, can there be in the whole world a youth who can find excuse for non performance?"

NOVEL EMPLOYMENT OF INDIA-RUBBER.—An ingenious discovery, by which india-rubber and gutta-percha are rendered applicable to the formation of artificial features and to the covering of artificial limbs, has been made by Mr. F. Gray, of Cork-street, London. By this discovery, the necessity of what is called the Taliacotian operation, in supplying the place of a lost nose to a face, is removed, for that feature can be formed, and, as if it were grafted on the integuments in such a manner as closely to resemble nature. The human ear can also be closely imitated by the substance, which perfectly resembles the natural skin and is almost equally flexible. So complete is the deception, that, without the closest inspection, it is nearly impossible to discover that art has superceded nature. This invention is among those which prove the variety of uses to which the materials employed in it can be applied.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

From the report submitted by the Council at the recent annual meeting, the condition and prospects of this great national society would appear prosperous and cheering. The total number of members was 5,084, and the surplus yielded by the Exhibition in Windsor Park last summer was larger than on any previous occasion. The Railways carried stock to and from the Show free of charge. At the request of the Council, Her Majesty's Government were using their influence in augmenting the supply and cheapening the price of Guano, which has become an indispensable fertilizer to the British farmer. All Captains of ships in the Royal Navy will be instructed to search for deposits of this valuable manure in the rainless regions within the tropics, and the surgeons of such ships are to ascertain on the spot the quality

of the article. Phosphate of lime is also included in their instructions. The Society has offered a prize of £50 for a statement of the geographical distribution and the discovery of new sources of Guano. The growth of flax as an agricultural crop had received the earnest attention of the Council, "who, although well aware that there are, under ordinary circumstances, no difficulties attending the cultivation of this crop, yet feel at the same time that at present adequate means are not generally available for taking the crop off the grower's hands." The next show of the Society will be held at Lewes, in Sussex, commencing July 12th, 1852.

THE NEW YORK STATE FAIR is appointed to be held this year at Utica, on the 7th, 8th, 9th, and 10th of September.

NOTICE TO BREEDERS OF STOCK, IMPLEMENT MAKERS, &c.—Parties having choice Animals or manufacturing improved Implements, which they wish to bring under the notice of the public, may have them illustrated and fully described in this journal, by sending us correct sketches of the same, and paying a very moderate charge for engraving.

PRIZE FOR STALLION.

TO THE OWNERS OF ENTIRE HORSES.—We are requested state, that the President of the Provincial Agricultural Society, anxious to improve the breed of good horses in this section of the Province, will give at the meeting of the Provincial Fair, to be held in September next, the sum of £30 to the horse, which shall by Judges, to be appointed by the Society for the purpose, be pronounced the best, and which shall answer the following description: Fully 16 hands high, well topped, round in the barrel and deep in the chest, he must have weight in proportion to his size, and be a good traveller—such a horse as would be likely to produce a breed of good carriage horses, in which the country seems deficient. To enable any horse to compete for this prize, he must have stood publicly for mares, in some part of Upper Canada, during the season of 1852. Competition for this prize not to exclude the exhibitor from competing for any of the ordinary prizes of the Society. We hope that our cotemporaries will give the above publicity.

CANADA: PAST, PRESENT, AND FUTURE. Toronto: THOMAS MACLEAR, 45 Yonge Street.—The 7th and 8th parts of this popular and useful work have been received; and their contents fully sustain the very favourable opinion which we have several times expressed of the earlier numbers. In the parts now before us there are two excellently engraved maps; one comprising the Counties of Waterloo, Huron, Perth, and Bruce; and the other those of Hastings, Frontenac, Lennox and Addington. The information contained in this publication is of a kind which no intelligent Canadian can afford to be without, and it is admirably calculated to afford a correct conception

of the present condition and future prospects of this rapidly improving country to people at "Home," who are looking towards new fields for the employment of their capital and labor. Thousands of old countrymen would receive with delight and gratitude the straightforward and unadorned statements contained in this valuable publication. We hope the publisher has made arrangements for bringing it before the British public, and that it will receive the liberal support in the Province, to which it is indisputably entitled.

AGRICULTURAL SEEDS.

We call the attention of our readers to the following seeds, just imported from Britain, by MR. JAMES FLEMING, of this city, *Seedsman, by appointment, to the Agricultural Association* of Upper Canada. His stock of field and garden seeds is extensive, and it has been selected with care and judgment, and the vitality of all seeds is fully tested before being offered for sale. The Swede turnip seed, together with that of the Aberdeen and Golden Yellow, has been imported direct from Aberdeen, where it was grown last season from carefully selected and transplanted roots. Mr. Fleming has also on hand an extensive assortment of flower seeds, green-house plants, garden tools, &c.

Improved purple and Top Swede Turnip.

Skirving's do do do

Laing's do do do

Aberdeen yellow, or Bullock. do

White Globe do

Golden Yellow (a fine new sort) do

Long red and yellow Globe Mangel Wurtzel.

White French Sugar Beet.

White Belgian Carrot.

Long Orange and Surrey do.

Spring Rape and Tares.

Black Sea and Fyfe Spring Wheat.

Red Clover, Timothy and other grasses.

Field Peas, several varieties.

Also, a fine lot of the true six week Pea, which will produce 60 bushels to the acre, and may be harvested in time to prepare the ground for fall wheat.

RECEIVED.—Communications from Mr. Sotham, N. Y., and Mr. Watt, Woodstock, which shall be attended to in our next. Also the Annual Report of Restigouche Agricultural Society for 1851.

A CONSTANT READER.—Chatham.—Your request shall receive early attention.

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TERM.

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NO. 4.

SCIENCE APPLIED TO AGRICULTURE.

The following address, by Dr. Frankland, is taken from the *Transactions of the Royal North Lancashire Agricultural Society*, in England. The Doctor, we believe, is the Professor of Chemistry in Owen's College, Manchester;—an institution recently established by the princely munificence of the individual whose name it bears:—

Dr. Frankland addressed the audience to the following effect:—The subject for discussion, as most of you are aware, is "The importance of combining science with practice in farming operations." I have only this afternoon, whilst present on the field where the agricultural implements were being tried, been requested to introduce the subject to your notice. I think the *onus* of introducing the subject would possibly have better devolved upon some of the eminent agriculturists present, since in the printed announcement of the discussion, "practice" comes before "science." In fact, it appears to me that the best mode of conducting these discussions is for practical men to express their opinions on the subject to which attention is directed, and then to put questions to the scientific men present which they might not be able to answer from their own practical knowledge. However, as the *onus* of introducing the subject has devolved upon me, I will endeavour, in as few words as possible, (as the time has been so much delayed) to convey to you what in my opinion are the principal points of connexion between the science of chemistry and that of agriculture. You will perceive that the subject in the prospectus is not confined to chemistry; it is the advantage of science in general, combined with practice in farming operations. Now chemistry, I beg you to understand, is only one of many sciences which can thus be applied with advantage to agricul-

ture. We have, for instance, the science of mechanics, which is perfectly indispensable to agriculture. We have also the science of physics, which is perhaps as important as chemistry. We have also natural history, which, as you are all aware, has a most intimate connexion with the subject before us. Now I would commence by a very broad assertion—namely, that without this combination of practice with science, all farming operations are empirical and lead to no trustworthy results. This will not perhaps be admitted by many of the agriculturists present; for we usually find that farmers, and especially tenant farmers, are exceedingly averse to adopting principles which can be deduced from the laws of science in their agricultural operations. You will, however, readily see that such a combination must take place, if we wish to have universal laws in the science of agriculture. A thousand farmers may try a thousand experiments upon a thousand different fields; and one farmer may produce an amazing crop of corn by the application of a certain manure. Another farmer may try the experiment with a different result, or with the same result; if with the same, it is looked upon as a confirmation of the original experiment, and very properly so; and there is additional reason for a third farmer to try the experiment in confidence of producing the same successful result. But if this third farmer has a field in which the chemical constituents of the soil are widely different from those of the first two, he will be mortified to find that in his case the manure completely fails. This we find an every day occurrence in agriculture. We find manures that are introduced with eulogium into certain districts, entirely fail when applied in other districts. If we would ascertain the cause of these failures, we must go to the very bottom of the subject. We must ascertain the composition of the soils upon which the manure may have been tried, and we must also have plainly before us the composition and *modus operandi* of the manure which is used upon those soils.

It is evident that this portion of the inquiry can only be set at rest by an application to chemistry. It is chemistry alone which can furnish us with a clear idea of the composition either of the soil or of the manure with which we seek to operate upon that soil. I might mention many instances in support of this position, but I will content myself with one—that of a farmer in whose soil there is a large quantity of phosphoric acid present in a form of combination in which we meet with it in bone-earth, or as earthy or alkaline phosphates. When he tries the effect of ammonia for its salts, and applies a top-dressing of sulphate of ammonia, he finds a greatly increased crop—a greater quantity of grass than would otherwise have been produced. Another farmer, whose soil is entirely destitute of phosphoric acid, tries the same experiment, and finds perhaps no benefit at all from the application of ammoniacal salt—for instance, sulphate of ammonia derived from gas liquor. What is the explanation of this? The art of agriculture itself can give us no explanation whatever. Both may be clayey, or gravelly, or sandy soils, and yet this difference of result obtained. A difference in point of mechanical structure has no influence whatever in this matter; it does not in the least explain the difference in result obtained by the application of this sulphate of ammonia. We find, however, on reference to the chemical constituents of grass, that those constituents which afford nutriment to the cattle feeding upon it must contain, as one of their essential ingredients, phosphorus. This phosphorus cannot be manufactured by the plant itself; it cannot be manufactured by any process in the soil; it must be present in the soil, or it cannot be conveyed into the pores of the plant and converted into the nutritive constituents which it is our object to form in the cultivation of plants. The consequence is, that the nitrogen contained in these nutritive constituents—this nitrogen which we wish to supply in the sulphate of ammonia, although an essential constituent of the nutritive matters referred to, is of no use whatever as supplied in the sulphate of ammonia, unless phosphoric acid be present in the soil. This is one of the many instances which we might adduce as showing the advantage of combining science with practice in ordinary farming operations.

Another advantage is, that by the aid of science we are enabled to economize our manures and apply to our fields just the kind of ingredients which they require. Take, for example, the case of a farmer who has land, perhaps, rich in nitrogenous constituents, and with a deficiency of phosphoric acid in the soil. Now if, by the advice of a neighbour or other person, he uses sulphate of ammonia or other ammoniacal

salts which may be in the market, he throws away just as much money as he pays for the salts in question. If, however, he knew that his land did not require these ammoniacal salts but was in want of other constituents, such as phosphoric acid, then he would use bone-dust or guano, both of which contain these phosphates in large quantities, and would therefore supply the deficiency. Another advantage flowing from the connexion of science with agriculture is, that we are enabled to ascertain by these means what kind of crops will produce the greatest amount of nutritive and fat-forming matter from a given surface of land. It is evident this question can only be set at rest by an application to chemistry. We must ascertain, in the first place, what ingredients it is necessary that we should give to our stock in order to fatten and bring them to their full growth. We find two distinct classes of substances requisite for effecting this object—namely, substances rich in nitrogen for the formation of muscles, and another class of compounds for laying on a superstratum of fat, which is now such a great desideratum in the feeding of cattle. The first class of substances which it is requisite to produce in the food we give to animals consists of those containing a large amount of nitrogen and phosphoric acid; the second class, for the production of fat, consists of substances which may be entirely void of those two elements, nitrogen and phosphorus. If we wish simply to fatten cattle upon our land, we know, by reference to chemical science, that we must endeavour to produce as much combination of carbon and hydrogen, in the form of sugar, starch, &c., as we can; and we need not particularly trouble ourselves about producing large quantities of flesh-forming principles, since the animals we seek to fatten are usually in a full-grown state. But in rearing your animals, we must look to muscle-forming principles, and give a sufficient quantity of phosphates to enable them to form a due proportion of bone.

Another advantage which agriculture has already derived from the science of chemistry is this, that chemistry has shown us from what sources plants derive their constituent elements. Formerly, farmers imagined that the richer the land was in humus, or humic acid, the larger the crops it produced. They imagined that these carbonaceous substances were dissolved in the rain water which descended, or were in some other way conveyed to the roots of the plants, and administered to the nourishment of those plants just in the manner that soup operates in feeding man. This was the mistake: the comparison of the life of plants with the life of animals—two states of existence which are precisely opposite to each other. The function

of plants is nothing more than the restoration of the equilibrium which has been disturbed by the function of animals. Animals restore to the atmosphere and to the soil those constituents which it is necessary for plants to obtain to form their tissues. This was shown by Liebig, who proved that in the extensive pine forests grown in Germany, the carbon and hydrogen contained in the wood of those trees must be derived from other sources than the soil upon which they grow; such soil containing scarcely a trace of carbonaceous matter. Upon a single acre of this land, there was reared in the course of a few years trees which contained several thousand pounds of carbon. How could this find its way into the tissues of those trees if it were not derived from the atmosphere? A knowledge of the atmosphere gives the solution. The atmosphere contains the whole of the carbon requisite for the formation of the carbonaceous tissues of plants. When we take into consideration the enormous extent of the atmosphere, the quantity of carbon contained in it in the form of carbonic acid, and the manner in which the atmosphere is brought into contact with the leaves of plants, we can find sufficient to account for the whole of the carbon discovered in the tissues of plants. It is now well known that the leaves of plants exposed to sunshine or diffused daylight absorb this carbonic acid very rapidly from the atmosphere, and eliminate from their surface pure oxygen gas. Now the carbonic acid is composed of carbon and oxygen: hence, it is mathematically certain that the carbon must remain in the leaves. It does not remain as charcoal, but is assimilated with the elements of water, and is converted into sugar, starch, woody fibre, or other substances which contain carbon along with the elements of water. In the same way, nitrogen has also been proved to be derived from the ammonia in the atmosphere. This is a most important point for agriculturists, especially for those on poor soils; because a large quantity of the manure applied to soils are manures rich in nitrogen—a material which is capable of being abstracted from the atmosphere by plants, providing they have the other mineral requisites to build up the organic substances, which they form from carbon, nitrogen, and water. If we supply these mineral substances, we can rely upon plants deriving sufficient nitrogen from the atmosphere to form the compounds before spoken of—namely, those nutritive properties which are the chief objects contemplated in agriculture.

We then see clearly that plants derive their nutriment from two sources: from one source which is perfectly independent of all man's operations—namely, the atmosphere; and from a second source—namely, the earth. We also

find that it is necessary to provide certain ingredients if they are not already present in the soil. The principal of these ingredients are phosphoric acid and the alkalies; sulphuric acid is also requisite; these materials being essential to the formation of the nutritive properties already alluded to. We therefore need only look, in agricultural operations, to the supply of these inorganic constituents—namely, phosphoric acid in the form of bone-dust, and potash in some cheap form, as from decomposing materials; the nitrogen (such an essential constituent in these nutritive principles,) and the carbon being entirely derived from the atmosphere. There is, however, one condition in which we can apply nitrogenous manures with advantage, and that is, where a soil is exceedingly rich in mineral ingredients, and on which we want to raise large crops of plants which are rich in nitrogen. In order to effect this, we must supply manure artificially, and in the form of ammonia; this being the only condition in which nitrogen can be assimilated by plants. We are also enabled to see, from the application of chemistry to agriculture, the causes of the advantage derived from the rotation of crops, fallow, and quick lime. The advantages of the rotation of crops is now appreciated by most agriculturists in almost all districts. But the way in which this advantage is derived is not by any means so clearly understood. It is well known to chemists and scientific agriculturists, that different kinds of plants absorb different kinds of constituents from the soil. Wheat, for instance, requires a large quantity of silica and phosphorus for its perfection. Another class of plants scarcely requires silica at all; while a third class probably needs only salts of potash or soda. In this way we divide plants into three classes: plants which require silica; plants which principally require potash or soda. Now when we plant wheat upon a soil, we withdraw from it a large quantity of silicious materials, silica or flint in a soluble state, and a considerable amount of phosphoric acid. Consequently, if you continue to crop the land with wheat, you will find your crops diminish in quantity, and finally you cannot grow any more wheat on the land. But if in the same soil you plant potatoes, you may have an abundant crop, even without the application of any manure. And again, upon soil where potatoes almost cease to exist, you may grow a considerable crop of clover. These circumstances are readily explained when we take into consideration the ingredients withdrawn from the soil by each of these classes of plants. Now if we wish continually to crop land with the same description of plant; if, for instance, we wish to plant wheat every year upon the same surface of land, we have nothing more to

do than to supply the requisite amount of silicious materials, phosphoric acid, &c., in order to effect this object. Probably, however, up to the present time these ingredients cannot be obtained sufficiently cheap to carry out this system; but if agriculturists were upon the watch for these compounds, there is little doubt that eventually a cheap supply of them may be rendered available, and the same land be cropped with grain crops every year in succession, without impoverishing the soil. Phosphoric acid can be supplied by bone-dust; but this is too expensive for common use. It is, however, fortunate for agriculturists that fossil supplies of this phosphate of lime occur in immense quantities in various parts, embedded in the soil to the depth of several inches, and occasionally to the depth of one or two feet. This "coprolite," as it is termed, (or excrement of animals that have long ceased to exist) contains from 80 to 90 per cent. of pure phosphate of lime. Now comes the question of supplying silicious materials to the soil—a matter which is engaging the attention both of agriculturists and of chemists at the present time. If we supply the requisite quantity of manure to a given space of land to crop it yearly with wheat, after two or three years the straw fails in strength, and the least wind beats it down, the straw not being sufficiently strong to bear the ears upon it. How are we to get rid of this difficulty? Simply by the application of these silicious materials, which are not requisite for the formation of nutritive matter, but are required to give strength to the stalk by which to elevate the grain to the atmosphere that it may ripen. It is important that we should be able to supply these silicious materials in the cheapest form. Bunson has discovered that in volcanic regions there are extensive layers of lava, known under the name of pelagonite, which contains silica in large quantities, and in such a state that it readily becomes soluble by the action of the atmosphere, and capable of being conveyed to the plants by rain water. All our soils contain a sufficiency of silicious matter, but being in an insoluble form it can only be reduced to a soluble condition by the action of air and moisture through a long series of years. This pelagonite yields silica in a comparatively short space of time, and might be imported for that purpose.

There is also another plan I would propose for adoption in places where it could be carried out to advantage—that is, the heating of silicious substances with quick lime. The chemist knows that when silicious substances are to be brought into solution, they must be heated with alkalies or alkaline earth. Now this is precisely the operation we have to apply to the silicious materials which constitute 40 to 50, and in some

cases 60 to 80 per cent. of our soils, to bring them into solution, and into a condition in which they are capable of being assimilated by plants. If we take these silicious materials—namely, gravel on the coasts, and flints in the south of England—and mix them in alternate layers with coal and chalk or limestone, and ignite the whole mixture, we convert the chalk into quick lime, and heat the flints to redness. If we then turn upon the mass a stream of cold water, so as to cool it very rapidly, we slake the lime, convert it into hydrate of lime, and reduce the flints or silicious stones into an almost impalpable powder; at any rate we disintegrate them to a very great extent, and bring a large surface of them into contact with the lime; and the consequence is, we obtain a large quantity of silicate of lime, which furnishes silica in a soluble form to the plants upon the soil to which it is applied. A few months ago, one of my students tried this experiment on a small scale in my laboratory with successful results. There can be no doubt that where corn or other grain crops are liable to heavy rains or rough winds, the application of such manures would be of the very greatest advantage. There are many other points which we might mention illustrative of the advantages which agriculture may derive from the application of chemistry; but as the time is already so far advanced, and as I am sure that many of the agriculturists before me will have questions to ask in reference to the application of manures to particular soils, or on other matters, I will content myself with the few observations I have already made, and conclude by assuring you that I shall be very glad, so far as I am able, to answer any inquiries that may be put to me on these subjects, or on other subjects relating to the application of chemistry to agriculture.

CONSUMPTION OF BREAD.—Estimating that there are 24 millions of bread-consumers in Great Britain and Ireland, (leaving out the four millions of potato-eaters,) and allowing each person one and a half loaves per week, it is 36 millions of loaves. Admitting that each quarter of wheat makes 136 loaves of bread it requires 168,656 quarters of wheat per week. To this add 10 per cent for flour used in other articles, and it gives 291,521 qrs. as the weekly consumption of wheat, or 15,367,092 qrs annually. London and suburbs, with its two millions of a population, consume three million loaves weekly, and with flour, require 24,626 qrs. of wheat. A quarter of wheat will give 50lbs of flour per bushel, of the quality which makes best seconds bread, 400lbs altogether; and that quantity of flour will make 134 quartern loaves. A quartern of wheat, ground into flour, and taking out only the rough bran, say about 5lbs to the bush., will yield 58lbs. per bushel of such flour, and that will make 141 loaves the quarter. A quartern of wheat ground down into rough meal without taking any bran, will give 62 or 63lbs of meal, and that will make about 166 loaves of healthy good brown bread.

The Agriculturist.

TORONTO, APRIL, 1852.

FLAX; ITS CULTIVATION AND MANAGEMENT. NO. I.

Having been favoured with several of the best treatises on the cultivation and management of the Flax-plant, through the kindness of FREDERICK WIDDER, Esq., of this City, *Commissioner of the Canada Company*, we propose compiling therefrom a series of papers on this subject, which from various causes is beginning to excite more than ordinary attention in different sections of the Province. As the time for sowing will speedily arrive, we shall commence with some remarks on the climate and kinds of soil best adapted to this crop, the preparation of the land, and the time and method of sowing.

The climate of Western Canada is no doubt sufficiently humid for the successful growth of Flax, which has been raised in small quantities in different districts for a number of years; the produce having been used for domestic purposes. Our position may not be equal to regions possessing an insular character—such as the British Islands, for example; but we should think it as good as most of the flax-growing countries of continental Europe, where severe droughts frequently occur in the spring, after the plant has reached a height of two or three inches; a circumstance very unfavourable to its subsequent progress. The growth of Flax may be said, indeed, to have a very wide range over the surface of the globe. “It flourishes in the light soil of Flanders, in the deep alluvial deposits of Holland, in the limestone and peaty soils of Ireland, and on almost, if not on every variety of land in England. Good crops have been produced on reclaimed bog, and it has grown on the Wicklow mountains a thousand feet above the level of the sea, and flourished even at that elevation on cold granitic moory soil, which in its natural state produced nothing but heath. Like grain and other crops, flax may show a preference for other soils and situations, but it will flourish and attain maturity in all, if proper care is bestowed on its cultivation.” (*Nicholls.*)

The best soils for flax are deep rich loams, resting on a clay subsoil. It is of much importance that the land should be naturally sound and dry, or made so by draining; and deep cultivation is, in all cases, to be strongly recommended,

since the roots will frequently descend to a depth equal to the length of the plant above ground;—a condition deserving much attention by the cultivator, particularly in countries (among which Canada must, to some extent, be included,) that are liable to severe droughts in spring and summer. It would be a good practice, especially on heavy lands, to plough deeply in the fall, leaving the ground in ridges, sufficiently furrowed to allow the water, after the melting of the snow in spring, to find a ready exit. Care should be taken not to work the land in the spring till it is quite sound and dry;—a precaution indeed that may be said to apply to cultivation in general, as the mechanical texture of the soil is often seriously injured for one or more seasons by the treading of horses when in a wet state; thereby causing it to consolidate to an injurious extent, preventing the free penetration of the roots of the growing plant in their search for food, and excluding the healthy action of air, warmth and moisture. Experienced flax-growers, however, find that a very loose soil is not favourable, as is the case with wheat, beans, clover, &c., all which require a soil moderately adhesive.

Rich pasture lands are those best adapted to the growth of flax. But if this crop is too frequently repeated, the very richest lands will soon cease to yield a profitable return, under the ordinary system of cultivation. Flax is no more an exhauster of the soil, *per se*, than cultivated cereals in general;—but when it is allowed to ripen its seed, which, with the fibres wholly removed from the land, and nothing in the shape of manure returned,—a practice that has too commonly been pursued,—there can be no doubt that flax culture, in such circumstances, rapidly exhausts the land. But so it is with all kinds of crops;—particularly the grain bearing plants. From the chemical composition of flax,—particularly the seed, it must draw largely on the soil for *phosphates*;—which, however, can be readily restored by the manure of animals fed on the refuse of the seed after the oil has been expressed; and all those portions of the plant not used by the manufacturer, ought to be converted into manure and returned to the land, instead of being, as has been too commonly the case, absolutely wasted. Even the water in which flax is steeped, possesses considerable manuring qualities, and will pay for economising, and applying to the land. In Belgium, where flax-culture is the most successfully carried out, liquid manure, properly

prepared and applied, is found to be extremely beneficial. Strong artificial manures, however, such as guano, bone dust, &c., require much caution and judgment in using them for flax. Indeed, it has been generally found most beneficial where a heavy dressing of manure is applied to land intended for flax, to use it for the previous grain crop, as the flax-plant usually succeeds well immediately after either wheat or oats. Fresh, stimulating manures, are apt to cause the plant to grow too rapidly, therefore producing a weak and coarse fibre; whereas *strength* of fibre is the quality which constitutes its principal value for manufacturing purposes.

The ground properly prepared and *clear of weeds*, the seed may be sown broadcast, an operation that should be performed with the greatest care with regard to uniform distribution. Sowing should commence as early in spring as the weather and the state of the land will admit, which in this climate will not be the case, in general, before May. The quantity of seed should be varied to suit special purposes and conditions. If the raising of heavy, plump seed be the principal object, then a smaller quantity will suffice—say about 6 pecks per acre; but for ordinary purposes from 2 to 2½ bushels will be required. If particularly fine flax is desired, such as is used in making the best lace and cambrics, 4 bushels, or even more, must be sown. Riga seed is said to produce the finest quality of flax; but the American would answer our purpose generally, at least for the present; but in flax, as in other things, a frequent change of seed is advantageous and necessary. Before sowing the seed, too much pains cannot be taken to free it from all descriptions of weeds, with which it is more or less commonly mixed. Select that which is plump, shining and heavy. The practice of sowing clover and grass seeds with flax cannot be commended, except for special occasions. After the seed is sown, it should be evenly covered, about an inch in depth, by the action of a light harrow, being careful to leave the land in a smooth, firm state, with the roller, with no more open furrows than are absolutely required for the taking away of superfluous water.

We would strongly urge upon the attention of our readers the inexpediency of having more land under flax culture than can be properly prepared and thoroughly managed. This caution is indeed needful as regards the cultivated plants of the farm generally; but in respect to flax, and the root crops especially, the difference between

good and indifferent cultivation, will in the main be found to consist either in an encouraging and remunerative return, or a disheartening and serious loss. Beginners, especially, should commence with a little, and, to conclude this paper, we would say, emphatically, *cultivate that little well*.

IRRIGATION BY LIQUID MANURE IN GREAT BRITAIN.

The February number of the *Farmers' Magazine*, contains an interesting paper from the prolific pen of Mr. Cuthbert Johnson, on the progress making in England as well as Scotland of fertilising whole farms by means of liquid manure;—a substance which till late years was too frequently allowed to run almost entirely to waste. Capacious tanks are made for the reception of the fluid excrements of cattle, which, when properly diluted with water, become a safe and efficient fertiliser, and is distributed over the fields belonging to the farm by means of pipes made of iron and gutta percha, attached to a pump, worked by a steam engine. The outlay in the first instance is of course very considerable, but in all cases, it would appear, when the experiment has been fairly and judiciously tried, the benefit produced has far exceeded the expense.

Myer Mill Farm in Ayrshire, occupied by Mr. James Kennedy, consisting of 400 Scotch acres, is an instance that may be cited for showing the beneficial and economical application of liquid manure on an extensive scale. The whole expense of the apparatus for fertilising this farm is stated as follows:—

Four Tanks complete - - - - -	£ 300	0	0
Steam Engine (12 Horse-power) - - - - -	150	0	0
Pumps - - - - -	80	0	0
Iron pipes, laying, and hydrants - - - - -	1000	0	0
Gutta percha distributing-pipes, &c. - - - - -	56	0	0
	£1,586 0 0		
Annual interest on £1,586, and wear and tear, at 7½ per cent. - - - - -	£ 118	19	0
Annual wages - - - - -	104	0	0
Fuel - - - - -	58	10	0
	£281 9 0		

This amount, divided by the number of acres, is equal to the annual sum of 14s. per acre.

The results are said to be highly satisfactory. Four or five heavy crops of grass have been cut in one season from the same land, which, by repeated dressings of liquid manure, not only suffers no diminution by the removal of such crops, but its fertility actually increases. The

same farm, previous to the introduction of this system of manuring, would not keep more than a bullock or five sheep to an acre;—now it maintains, by the crops being taken and consumed in the stalls, five bullocks or 20 sheep to an acre. Some bran and oil-cake are bought for the stock, but one third or more of the farm is kept in grain, yielding heavy crops.

These few facts will afford the reader some imperfect idea of the advanced state at which farm management has already arrived in some favoured localities of the Mother Country; where the farmer's pursuit is justly entitled to the appellations, in their highest signification, of a science and an art.

DEPRESSED STATE OF IRISH AGRICULTURE.

A recent number of the *Irish Farmers' Gazette*, contains the following painful facts:

In 1847, the average price of wheat in Dublin, was 41s. 3d. per barrel of 20 stones, and Ireland raised 2,926,733 qrs. In 1850, the average price was reduced to 20s. 3d. per barrel (more than 50 per cent.!) and the amount raised was only 1,550,196 quarters; showing a similar rate of decrease. Barley and oats do not appear to have fallen off in amount so largely as wheat, but equally as much in price. In 1841 there were in Ireland 13,464,303 acres of arable land under cultivation. In 1850 that amount was reduced to 5,758,292! "What," says the *Gazette*, "has become of the eight million seven hundred and six thousand acres which constitute the difference?" The following figures will answer the question:—

Farms occupied and cultivated.

1847	- - - - -	803,025
1850	- - - - -	628,222

Difference, 174,803

In regard to population, the Census tells us the following tale:—

Total population of Ireland.

1841	- - - - -	8,175,124
1851	- - - - -	6,515,794

Diminution, 1,659,330

The *Gazette* attributes a large amount of this national misery and decline to the operations of "a one-sided free trade," which has caused Ireland to lose nearly all her export trade with England; government contracts for provisions even being made in foreign markets, provided only such markets are cheaper than her own. Without mooted the much vexed questions of free trade and protection, we think it must now be apparent to every unprejudiced mind, that

England, ere she had finally committed herself to the former, would much better have consulted her own peace and prosperity by accompanying that important change in her commercial policy, with such fiscal and legislative modifications in reference to her agricultural and colonial interests, as should have enabled those interests to partake of the benefits which free trade was designed to confer;—thereby preventing discontent, and almost open rebellion in the colonies, the hopeless prospects and utter ruin of thousands of British farmers and their dependants; and the present disorganization and prostration, apparently hastening towards a national extinction, of the warm-hearted inhabitants of the beautiful "Green Isle;"—who, instead of being only a source of weakness and annoyance to England, might have been made her strongest pillar of strength and defence.

SHEEP HUSBANDRY IN CANADA.

We present our readers with the conclusion of Mr. Hume's excellent Essay read before the Township of Hamilton Farmers' Club, Jan. 24th, as reported in the *Cobourg Star*. The first portion of the Essay was published in our January number.

In concluding my last paper on Sheep husbandry, I gave up at a point, where I am satisfied the experience of many of our number would have enabled them to do the subject more justice than can be expected from me, who am comparatively a novice in the farming of this country. It is therefore with the utmost diffidence that I now, at your request, carry out the matter, and submit opinions at the best crude and indefinite, in the presence of those who are so much my seniors in Canadian sheep farming. In the management of stock, the circumstances of locality, climate, food, &c., exert such a powerful influence that it is only from the accumulated experience of many successive generations of practical men, in a given locality, that we can hope to attain any degree of success. Gradually, certain facts are established, on which men of judgment can found their reasoning and push on more rapidly in a career of improvement. But in a new country like ours, it takes some time before these principles can be fairly ascertained, and firmly grounded. The Geologist, from studying the formation of the earth, may, on finding deposits of a certain character, lead you to those places where the desired substances are to be found. The chemist, by analyzing such substances can ascertain precisely their various ingredients and properties, shewing their value in the arts and manufactures. Then comes the mechanic, and by adapting his tools and mechanism to a precise knowledge of these properties he proceeds at once to use them in the carrying out of his manufactures. But where the vital principle is concerned, there our powers of reasoning are at fault; fresh data enter into

the calculation, a thoro' knowledge of which, our Creator seems to have reserved to beings of a superior order to us mortals. We can take away life, but we cannot even discern the sources whence it arises, and it is only by the accumulation of facts as to its action that we can deal with the principle.

Under these circumstances it may be seen of what great value are societies like the present,—they induce a habit of thinking, a habit of thinking leads to the observation of facts and the circumstances of their relations one to another; relations which though often of the utmost importance are neglected where habits of reflection are not cultivated. By the way a regular memoranda of ordinary occurrences as they happen would be found to be of incalculable advantage to farmers generally, affording them an opportunity of comparing season with season, and the circumstances attending one year's operations might thus be made to bear upon the difficulties of another.

But to return to the subject immediately before us, the management of sheep farming in Canada. The consideration of it seems naturally to fall into two branches: First, the mode of investment of capital in a sheep stock, so as to yield the largest profit to the farmer; next the mode of management of that stock so as to keep it in the most healthy condition; assuming always, that stock kept in the most healthy, thriving condition, will yield the best and safest return to the holder. This position I think we may safely take, notwithstanding the fact, that pampered animals, covered with an extraordinary superabundance of fat, often yield a large profit as show animals, although they cannot be said to be in a naturally healthy state. On the same ground of whom some actual diseases may, perhaps, be made occasionally to yield a profit. I remember a lawyer dining at the table of a friend of mine; when, on his expressing himself much gratified with the excellency of the mutton, his host told him that it was a sturried wedder. The next day, he went to his butcher and begged to be supplied as often as possible with sturried mutton, as that was the finest kind of sheep he had ever tasted.

The chief view of the farmer in the investment of capital in stock is to make a profitable market for the various productions of his soil; not in their raw state, immediately available for the use of man. There is however another consideration by no means to be neglected, that is the returning in the shape of manure a full equivalent at least to the crop taken off the land. It is true that in some localities, as near towns, a large amount of stock is kept entirely independent of the farmer, except, in making a market often of a most remunerating character, for his coarser grains, hay, and roots. In such case a large amount of stock would often seem not to be required by the agriculturist; but here he would do well to be particularly on his guard against the disadvantage arising from a short stock, a short supply of manure; and to avoid that evil by the constant use of the large quantities so easily obtained in the vicinity of a dense population. Speaking approximately, there are three modes of manage-

ment of a sheep stock, which, in the extension of that husbandry, now lie open to us. First, the rearing, holding always in the highest condition, and selling off as soon as possible our own stock on a comparatively limited scale; second, the rearing and bringing to a certain point, by one party, whose position may be most fitted to the purpose; and the feeding off by a second party (who may be more favourably situated for that object) after purchasing from the raiser at a remunerating price; third, the rearing, keeping, and feeding off, on a more extended scale; an article usually kept to a greater age than the first class, and hardly until the final stages maintained in such high condition. In the latter mode of management, a larger flock could undoubtedly be maintained with less expense of labour than on the first plan, and, as the wool is one source of profit, it remains a question whether the return on the food consumed might not even be greater, especially as that food during a great part of the period might be of coarser quality. But the farms would require to be of sufficient range to allow to each class of sheep its proper distinct locality. It is however a doubtful matter, whether our present ready money market would be capable of absorbing any great amount of such stock, *en masse*, as it would require to be turned off. Should ever our market become more extended and steady, this would be a course of management well adapted to our back country; much might also be urged in favour of the second mode in back districts, where hay and other coarse fodder is often of little value, or will be so when lumbering becomes worn out. A large amount of sheep might, in such places, be with advantage, reared and sold, to the feeder more immediately on the market to finish off. There would by this arrangement be less loss from deterioration in bringing forward, and the butcher can always afford to give a better price to the man who keeps an article ready for him close at hand, when he may require it; instead of himself seeking it at a great expense of time and labour. At the same time, the front farmer who can sell his heavy fodder to advantage, and whose land is of high value, and consequently minutely subdivided, would not by this arrangement be required to keep a large stock, in its earlier, and to him, least profitable stages. The objection to this mode of management would at present chiefly be the slovenly mode of rearing stock so general through the country, rendering it difficult to procure an article of such quality as would make it desirable as a feeder. Here is a motive to the man living backward, to rear stock of a better description than he at present does; for, assuredly, the time has now arrived when such stock, were it produced in any quantity, would find a ready market. Another difficulty, perhaps, lies in what I have before alluded to, the absence of fairs bringing together stock, so that a purchaser can, with little trouble, select such as is peculiarly adapted to his purpose.

Considering, however, the class of sheep to which I have already given the preference, the heavy Teeswater or Leicester, I should, under the present circumstances of our country, choose the first mode of management. A thorough founda-

tion for such a stock, requires now to be laid, and the rearing of this class of sheep is hardly yet in a sufficient number of hands to accomplish that object; under such circumstances, the raising for himself, is the only way by which a farmer can be supplied with a good article, at a price which will pay for feeding. By keeping this class of sheep in good order, they can be turned off at an early age, not encumbering our small farms with a heavy stock in different stages of growth. They may be kept ever ready for any demand, regardless of season. At the same time it is an important consideration in the present state of our affairs, that no actual outlay in money is required at any stage of the operation, except in the first acquirement of a breeding stock. When capital is sufficient, I should certainly recommend beginning at the root by buying as many good breeding ewes as circumstances may require, using to which, one of the best tups, you at once obtain your object. But as means are not usually too abundant here, it may frequently be desirable to begin crossing from the very bottom, or with only one or two superior ewes. In such a case, it may often scarce be worth while to use a very costly tup for the general flock, but rather to spare the expense, to be applied in sending a few of your best ewes to one of the best tups to be found in your vicinity—I say one of the best tups, for I would suggest that the very best tup to be found is not consequently the best for your purpose. Great expense and trouble are in all countries, and especially in this, thrown away by a want of attention to the true principles of breeding. In entering on breeding, you ought as a first consideration, to lay down definitely the qualities you wish to attain; be it long wool, be it short, be it fat, be it leanness, be it speed, be it sluggishness, or be it a combination of these qualities; keep your object ever in view, and never without some good reason swerve to either side; you may seek by one cross to impart a fine head, fine quarters, fine wool, or any other quality to your breed; but remember that by persisting in this crossing, you are not only engrafting this one desirable point, but mixing up all the other points also; many of which may be in direct opposition to the character you have all along been striving to maintain. There is one consideration, however, which seems to have become a fixed axiom in breeding, that while the male should have every point possible of symmetry and beauty, size is only a secondary consideration. In the female, on the other hand, every point may be in perfection, but where there is a deficiency in size, there is always a danger of a want of due development in the offspring. There is of course a limit to which you may carry this idea; but, it was a favourite one of the successful and justly celebrated Bakewell, and has been verified in the general experience of breeders. I remember (not personally, but as a family tradition,) an instance in point, when the Cullies, the first breeders of the Leicesters on the Borders, and the intimates of Bakewell, started the introduction of this breed into Northumberland—they were in the habit of holding an annual letting and sale of Tups, in which they were very successful for two or three years, and the new sheep became quite the rage. On this, some

Yorkshiremen bethought themselves of trying their success in a trade so fortunate, and exposed in Morpeth market a lot of Tups of enormous size, with heavy curly wool. These were at once bought up as far outstripping their finer competitors, produced by the Cullies, and the latter gentlemen found their occupation rapidly going, if not gone. If I mistake not, this lasted two years, until the result of the cross on the small country and fine Leicester ewes began to show itself, when the next season the Yorkshiremen, with rueful countenances, had to carry back their now large importations by the road they came; and a Lincoln Tup, for I fancy by the description, of that character they were, has not been seen in Northumberland since. Under the mode of management we now speak of, it will seldom be found desirable to keep the average of the ewe flock beyond the age of five years. A number of this age might be cast every season, and either sold off in the fall, or held over on turnips until toward spring, when they would generally command a good price. In entertaining at all the thought of an extended sheep husbandry, we must not be alarmed at the fear of some additional labour; a dozen to 20 sheep may fend for themselves on a farm and do well, with almost no attention, but as the number extends, the competition becomes greater, and their care must then be made a distinct object, if success is hoped for.

But we are now arrived at the home of the practical farmer, his snug barn yard where he can bid defiance to the Chemist, Geologist, and every other Theorist, who has dared to enter the lists with him. Give me a good muck heap before all your hydro-sulphuretted, desicated composts.

The calm stillness of our Indian summer, the rich coloring of the fading woods, the rustling carpet of leaves under your feet; not unaccompanied by the still white frost of morning, through which the sun urges his ruddy beams, remind us that another season is at hand, with its due proportion of cares and pleasures. Such signs mark the time to select your breeding ewes. Though during the previous busy period they may very properly have ranged the stubbles in a somewhat neglected state, it is now desirable to put them on as good feed as you can command, a rough oat stubble, or, if your new grass be at all flush, suffer them to have the benefit of it before it is cut down by the earliest frost. I have always found it best to have the ewes rising in condition, at the time they go to tup. Mark me, I want them rising in condition, not dead fat. To rise, they must have been previously somewhat leaner. Nothing, however, seems to me more injurious than to have the ewe too fat during the time of gestation, a few white turnips or rape would be found of great value at this season.

Meantime allowing our flocks to enjoy themselves on the best we can afford, let us make our winter arrangements for their accommodation. For this purpose, a situation should be chosen where a dry sheltered shed can be erected, wet is the sheep's enemy in Spring, and especially at lambing time; the yard of this shed should if possible have a Southern or South Eastern expo-

sure, and be devoted to sheep alone. It is always dangerous to have cattle in a yard among sheep at any time, but especially when heavy with lamb. The vicinity of the stable is also desirable, as inferior hay is often pulled down and rejected by the horses which may be with great advantage handed out to the sheep, forget not also some means for a constant supply of water to the ewes during the more advanced part of the season. Having constructed a shed suitable to your purpose, and large enough not to be too much crowded, racks ought to be arranged in the yard of sufficient capacity to admit of all the sheep feeding at once, and so constructed as to dirty the wool as little as possible. It is a slovenly and wasteful plan in a crowded sheep yard to scatter fodder around,—as sheep, well fed, seldom like to return to food they have trampled over. Troughs, also, for feeding out roots or grain, should if possible be placed under cover of the shed, in order to keep out snow and ice; and so managed by cross-bars, or some other device, as to prevent the sheep standing in them. Here again there should be ample accommodation for all; or you will see your weaker sheep grow daily poorer, sacrificed to the stronger and more fendy ruffians.

I have always found pea straw, clover straw, or even oat straw, if not too well threshed, and liberally supplied, accompanied by the stable refuse, sufficiently nourishing feed until the early part of February—during very stormy and severe weather, a little hay may be given. As the season advances, a few cut turnips or carrots may be added after their morning's fodder; at that time of day they are not apt to freeze, if they remain for a time uneaten. As lambing time approaches, I have found a few bran mashes with a little boiled Indian or Pea meal mixed through them, prove very advantageous in bringing ewes to their milk. I never have been so successful in this respect as the first year I was in Canada; I then simmered over night one quart of Indian meal in a common iron pot, full of water; with this I mixed about a pail full of thin bran mash in the morning, and gave it among 20 ewes,—on this they milked better than I have since found them do on a good supply of carrots.

You should particularly guard against bars, or any low fences around your ewe pen; have good gates and high fences. A lad carelessly leaving up the bottom bar, when the rest were down, has been the cause of many a fine ewe casting her lamb, frequently involving the loss both of the mother and her offspring. If you have any of your best ewes on which you can afford to bestow a little additional care, you may venture them to lamb a little earlier than the general flock; so that the lambs may be got out of harm's way before the more busy time comes on; with this object in view, I have always found the season from about 15th March to the 12th of April, to be particularly shunned as a lambing time. The sun has then attained much power; and it is generally wet and sloppy through the day, often freezing up most fiercely with a cold North Wester at night. This weather destroys your wheat, and it will sweep off your lambs as rapidly; such a night tells its tale in the morning.

I have found my ewes for the last six years produce the first lamb invariably five current months after the day the tup was put among them. Thus I should advise your early ewes to be put to about the 27th September, where your general flock is at all numerous, notwithstanding the remark I have made, with regard to the weather in the early part of April; I cannot advise to withhold the tup beyond the first ten days of November, as the weather often after that period becomes so boisterous, as much to affect the general heartiness of the flock.

Lambing time has at length arrived, your first care must be to provide three or four small pens, in the most sheltered part of your shed; each furnished with some convenient mode of feeding. I have always found it desirable, where ewes are lambing in a crowded pen, to shut the mother and her offspring up together, for the first night at least; if there is any difficulty in mothering the lamb, it may be continued for one or two days, but never longer than is absolutely necessary, as there is a danger of the ewe being shy of feeding in her new position. But there is a caution which I find here absolutely necessary; every ewe, on recovering from lambing, seems to require water; this I invariably provide for by giving a very liquid mash, which also assists in bringing forward the milk. Should this precaution be neglected, you will generally in six or eight hours find the ewe sicken, and have a giddy stupid appearance; while the lamb at once begins to scour; but this will generally be relieved in its earlier stages by administering the requisite liquid. If the lamb is not relieved, I have given with success a small quantity of opium in the white of an egg. The danger more to be feared here to your lambs, when confined in a crowded pen, is a stoppage of the evacuations caused by exposure to wet, intense cold, or the neglect of the mother during the night. The extremities become cold and a deadly stupor rapidly supervenes. Here I have found the administering a little warm milk, taking the lamb into a not too warm part of the house for an hour or so, not more, accompanied by continued friction of the limbs, quarters and loins, very frequently successful. But the lamb must as soon as possible be replaced with the mother in one of your small pens and suckled. In giving milk to lambs, it is necessary to know, that about a table spoonful at a time, is sufficient for the capacity of the stomach. A great cause of the want of success in bringing up young lambs on milk, is, that people often vainly endeavour to squeeze the whole contents of a tea pot into a cavity not larger than a walnut shell. The plan usually adopted by shepherds is to carry a small bottle of new milk somewhat diluted with water, and sweetened with sugar, so little as scarcely to be perceptible; this is kept warm by being carried in the breast pocket, and when about to administer it, a little is taken into the shepherd's mouth, and retained until he no longer feels any coldness in its taste; it is then dropped into the mouth of the lamb held open for that purpose. During the busiest part of lambing, your ewes should if possible be attended to, once at least in the course of the night; your pens will then be found most

valuable, as any ewe, having the appearance of lambing, may be placed by herself and can be seen at once, without your perishing in the cold for half an hour.

Spring now brings to the farmer anxieties about other matters; and your flock, on getting out to grass, will not require that close attention. Your lambs should be castrated at the age of about a fortnight, while the weather is yet moderately cool. From that period, the feed and management of each farmer will depend on his own peculiar arrangements. The ewes ought to be dried in the course of July, if possible, or at latest early in August; after the stubbles are open, there can be no excuse for keeping lambs sucking the vitals out of the ewes. The ewe lambs, of course, no judicious farmer will think of breeding from, the first year; and he will take care to provide them with the best of feed during the first winter; in a situation apart from the older sheep, which would otherwise drive them from their feed. Towards spring, it will be found necessary to slice pretty fine any roots given to the lambs, otherwise, as their front teeth are getting loose, they will refuse to eat them.

I have now travelled over more ground than I purposed at starting; I have freely expressed my opinions founded on experience, abstaining from what some people call book farming, from an impression that these meetings are more for the purpose of gathering together, and digesting our mutual experience, than for repeating information from books, which we can read at our own fire-sides; at the same time that I would be the last to depreciate any information from whatever source derived. I trust, by thus collating our experience, we shall be enabled mutually to benefit each other, and advance the calling to which we belong. I am proud, gentlemen, of being a farmer; people tell me it is an independent mode of life, but I would rather call it a dependant one, and its dependance constitutes its pleasure. God has formed his creatures for society, each dependant on the rest for his comfort and happiness; and no man is in a position to realize this feeling so directly as the farmer. His food, his employment, his comfort, are derived from sources directly around him;—earth, air, and water, each contribute to the fruits of his labour, and there is no creature of God's creation, no law of his omnipotent providence, a knowledge of which will not assist the farmer in his every day pursuits. A field is thus opened up for the cultivation of both the mental and bodily powers, which is most in accordance with the purpose for which they were originally created. And breathing the pure air of Heaven, and surrounded by the gifts of nature, which a bountiful providence has strewed around him, his position makes the nearest approach to that of man in his primeval and happiest state. Always reminded, however, of his present position and future prospects by the curse that rests on him, that he shall earn his bread by the sweat of his brow.

A GOOD APHORISM.—Always do as the sun does—look at the bright side of everything; it is just as cheap, and three times as good for digestion.

THE COW: DAIRY HUSBANDRY AND CATTLE BREEDING.

By M. M. Milburn, Author of Prize Essays of the Royal Agricultural Society. London, Orr & Co.—This is one of the admirable series known as "Richardson's Rural Handbooks." The various kinds of milk-producing and fat-producing breeds of cattle are described, and the important subject of dairy management, as practised in various localities in this country and abroad, is detailed, evidently by a practical hand. Altogether, a mass of information is brought before the reader which might even be looked for in vain in works of a more pretending character. We extract,

THE GLOUCESTERSHIRE DAIRY SYSTEM.

"In this district, celebrated for its *double Gloucester* cheese, the practice is not so entirely dissimilar to the Dunlop and Cheshire modes, as to require a very minute detail. They weigh usually about twenty-two pounds each, are a rich and useful cheese. The single Gloucester, or one half new milk, and one half blue or skimmed, are disappearing from public approbation. The milk fresh from the cows is taken and mixed at once with the rennet and annatto, and left for an hour covered up to prevent the escape of the heat, which is maintained, so far as it can be, at the same degree as in Cheshire, and the curd is broken by a knife with three blades, or a sieve made of wire. The whey is taken out with a wooden dish, and is placed in the vat, over which a linen cloth is spread. Into this cloth the curd is put, and pressed with the hands until it will bear the cover of the vat, which is then placed upon it, and loaded with a weight, or it is placed in the cheese press. The curd is then torn in pieces by a curd mill, and again placed with a clean cloth in the vat, and pressed. In four or five days the curd is thoroughly deprived of the whey, and is taken out to undergo the process of drying. It may be observed that salting has not been described. No salt is mixed with the curd, but it is rubbed upon the exterior of the cheese, some twelve to twenty hours after it has been put in the press. It is rubbed in with the hand, so long as the curd appears to absorb it; and the cheese is again transferred to the press. This takes place three times each day, and the quantity of salt allowing for waste, which a cheese of twenty-two pounds will absorb, will be about ten-ounces. When taken from the cloth, they are wiped and laid to dry, in the ordinary manner, being frequently turned.—When intended for sale in London, they are scraped and painted. A coat of red colouring matter, dissolved in ale, is used, which is rubbed on the cheese with flannel. Of course this has no beneficial tendency."

THE HISTORY OF COFFEE is perhaps not known, or remembered by every one. A writer in Hunt's Merchant's Magazine says that in the 16th century an Ottoman ambassador, Soliman Aga, presented some of the seeds to a king of France, as a pleasant beverage produced in Arabia. In 1654 an Armenian, named Pasquel, opened the first shop for the sale of coffee (an infusion of it) in Paris. It is now in general use all over the world: and nearly all the coffee drunk is the produce of the new continent, where about one century ago it was not cultivated at all. The people of the East in place of raising it themselves, borrow it from the Americans.

W. GAMBLE, Esq., of Milton Mills, has received a Bronze Medal similar to that awarded to Mr. Paterson of Dundas, which we noticed last week. No doubt the distribution to Canadian Exhibitors, who were successful, has been simultaneous. Such are the peaceful trophies of our young country. How much better than those of war!

MR. SOTHAM ON IMPROVED BREEDS OF CATTLE.

{PIFFARDINIA, LIVINGSTON Co.,
N. Y., Jan. 31, 1852.

MR. EDITOR:—I see, by Mr. Parson's first letter, the reason he gives for the superiority of Short Horns, is, by their great number over other breeds. *This is a very wild thought.* Two-thirds of them, even with *herd-book pedigrees* (which he well knows) have their hides stretched over them as if tightened with a pair of pincers, and not worthy to be classed with *any improved breed*. Those who are so strongly their advocates, should be prepared with some better cause for their preference than their becoming fashionable.

I will here ask Mr. Parsons whether it was his judgment, as Chairman of Short Horn Committee, in deciding the first premium for the best Short Horn Cow at Niagara, 1850. If so, I differ very widely with him there. I should not have noticed the first premium cow; so either he or myself must be incompetent to judge of improved breeds of cattle; which of the two, remains to be proved. There were several far better cows in my estimation. I will here describe her so that there will be no "*mistake*," for I was very much surprised when the decision was made. She was a young cow, very long on the legs, *very coarse bone*, a narrow hollow crop, large paunch, level chine, very scanty brisket, medium breadth of hips, rumps very good in shape, and flat sides,—these were covered with thick "*flabby flesh*" of very inferior quality, which concealed a multiplicity of faults *to the eye* but could not *deceive the hand*. There was no elasticity about it. Her udder was small, but handsomely shaped. The calf, which was in the pen with her, was thin in flesh and indicated her lack of milking properties,—neck long and thick—head a staggy appearance—colour red and white. This seems to me to be as correct a statement as my recollection serves to guide "*my opinion*" of the animal. I will call upon other *disinterested judges*, who saw her at the time, whether these are *facts* or not. If this was a model of a good premium cow, I am no judge, and I think it is an important point for a man who writes for an agricultural paper on the "*qualities*" of *improved breeds of cattle*, to first show his judgment and capability. I did not advance this controversy; therefore, I am "*on the defensive*." This is not the only time Mr. Parsons has given the preference to an animal with "*soft flabby flesh*" when he has been judge; and I can name it, if necessary.

This, Mr. Editor, is one of our most important errors; judges are too apt to give the preference to *fleshy* breeding animals, no matter what the breed, or quality; they always look at the animals as they are, and will not allow for adverse circumstances. A *good judge* ought to be able to discriminate a good *symmetrical* and *high quality* animal in *low, or medium condition*, from a common animal loaded with *inferior flesh*. If he cannot do this, he never ought to be put on any Committee. But enough of this—I suppose I shall make some enemies; but, if *facts* will do it, I *must encounter them*.

Another point. Mr. Parsons said to me, at Rochester, that I must have a better quality of Herefords to contend against the Short Horns than those I had there. I will admit that they were low in condition—not one of them ever had a peck of meal in their lives, to my knowledge. I have a proposition to make to him, which he cannot do less than accept, after making such an assertion. I will show six of those Cows, and Heifers, and a Bull, next July or August, in their own pastures, against a like number of Mr. Parson's, for quality alone, or weight in addition, as I consider them to be the *very best quality* that England can produce of *any breed*, and am willing to back my opinion. The judges shall be Canadians. I will name Hon. Adam Fergusson for mine; although a Short Horn Breeder, he is a straightforward, honest man—a good and unprejudiced judge—which is all I ask. Mr. P. may select his. Those two, naming the third, the losers to pay the expenses of the judges, while on duty, in examining each lot. When this is decided, I will meet him on the weight of butter made by said six animals. He may send a Canadian to test mine; I will send an Englishman to test his. The time of trial may be made by him. Any intelligent person, in whom Mr. P. has confidence, can fill this office, who is not "*ashamed to work*" while the trial is being made; set and skim the milk himself; see the butter made up, and, in fact, look closely that there is no deception. I can send one to him in whom I have confidence. This can be done at little expense, which will suit my circumstances best. It is an important trial, and one Mr. Parsons proposes; therefore, let us try it. When these are ended, another trial may come forth. A pair of two-year-old Steers may be shown for early maturity; a yoke of oxen to test the plough in deep ploughing; a fat ox or cow to try the weight and quality of meat—(I sold a Hereford cow at Boston, in 1846, for one hundred and fifty dollars, that weighed 2,313 lbs. alive, on the scales, and never had any meal until Dec'r 1st, and was sold the latter end of March following.) The quantity of food consumed can be acted upon.

I will here leave Mr. P. to meditate on these proposals, and show you "*my opinion*" of S. H. and Herefords; but, before I proceed to this, I will ask Mr. P. why he fed "*thousands of Devons and hundreds of Herefords*," if Short Horns were so profitable as he is trying to make them appear? My opinion of S. H. is this: they are fashionable animals, supported by men of money, nursed, groomed, pampered and fed, without regard to expense or profit. They are large to appearance, and with a sleek meal coat on, fine looking to the eye, but, like all other "*high fed*" and fashionable things, very deceiving.

I shall now allude to three important points objectionable to Short Horns. First. Their *apparent* large size and coarseness. Large, is a term often given to an animal standing on high legs, with a *very extended paunch*, without corresponding width, or depth of frame. Secondly. The first class S. H. are frequently covered with a thin skin—a true indication of delicacy and lack of constitution. Thirdly. They generally

possess a quality of flabby flesh, which is considered very soft to *the touch*, and which is always connected with a thin skin. It is the union of these three qualities which often characterizes the first class Short Horns, and which is considered by the best judges to be only second rate, under the term called good handling. It is the union of the two latter, that establishes the constitution,—and it is from this reason, only, that they require nursing and extra care. It is not so with the Herefords—they have maintained a higher standard of excellence, for which the best of the breed has always been esteemed. A moderately thick mellow hide, with a well apportioned combination of softness, with elasticity. I prefer the touch to be moderately firm and elastic. They generally stand on short legs, over which is a straight compact paunch, wide hips, level back and crops, round ribs, meaty chine, possessing weight with compactness, their udders generally of medium size with very little flesh, and will stand the test for *rich milk* and butter, for the food they consume, against any other breed. This is the character of my herd, which I am always ready to maintain.

The following extract, from the *Mark Lane Express*, Sept'r 15, 1850, is proof of what I have said, as some of mine are descended precisely from the same herd: "The prize Hereford Bull, shown at Windsor by the Right Hon. Lord Berwick, Cronk Hill, near Shrewsbury, aged four and a-half years, was unquestionably the best bull in the yard. He has a '*large*' *square frame of great depth*, well covered with flesh of good quality. He has a good skin, short legs, girths nine feet, and is six feet in length;—altogether, he is a large, compact animal. The second prize Hereford Bull, belonging to Mr. Price, was also a remarkable animal, but not to be compared with Lord Berwick's bull. Although but three years and twenty days old, he girthed eight feet seven inches; whilst the prize Short Horn Bull, a much higher and *apparently* a much *larger* animal, girthed two inches less, although three months older. The other classes of Herefords contained some admirable specimens, and, although not so numerously exhibited as the Short Horns, yet we think as a class they stood unequalled." There seems to be something in this account of the Herefords that contains "*proof*." Since writing the above, my *Mark Lane Express* has come to hand, containing the account of the Smithfield Show, in which it seems the Herefords nearly carry every thing in classes of Steers and Oxen—10 prizes; to Devons, 3; to Short Horns, 1; and the Hereford Ox winning the cup as the best in all classes;—in Cows and Heifers—Herefords, 1; Short Horns, 6. In Cows, there were but very few Herefords shown; the Short Horns were "*great in number*." In the report, the Herefords and Devons were *all sold*, the names of the purchasers given. Of the Short Horns, two only were sold—the report says "*not sold*"—opposite each animal, which is a *proof* of the demand for best quality. The report further says that Mr. Phillips' two years and ten months old Hereford, was remark-

able for its form and *early maturity*, and that the Short Horns were apparently *too large and coarse for prize animals or for sale*.

Yours, &c.,

W^H. HY. SOTHAM.

IMPROVEMENT OF PASTURE LAND, &c.

WALPOLE, 26th Feb., 1852.

SIR:—Observing by the newspapers that there is to be an Agricultural Minister in the Cabinet, and an Agricultural Professor in the University, I, along with many of my neighbours, begin to think about what is most likely to benefit the farmers of this Province. And here I will just state that I am only a plain home-spun farmer, with neither a classical nor scientific education. But having been brought up to farming in England till thirty years of age, and having spent the last ten years in Canada, I have had some practical experience.

The principal disadvantage the farmer in this section of country labours under, is, that the only paying crop is wheat. Now, there is no need of my trying to prove to you that the English farmers make more money out of their *stock*, than of their wheat;—nay, many of them make more from their stock than by all the grain they grow of every kind. This I have no doubt you will admit. Now, Sir, I have no doubt you are ready to say, but we cannot grow turnips to the extent they do, at least, not profitably,—and here I would agree with you, for we certainly cannot. But may we not improve our pastures? Go into one of the Western counties of Old England, in the middle of May; take a morning's walk into a meadow, observe the variety and luxuriance of the herbage, to say nothing of the beauty of the scene (and surely no artificial flower garden ever could be compared with it!) and no one would wonder at the amount of stock the farmer raises on such pastures. Timothy, though an excellent grass for hay, gives scarcely any after grass, or fog, as some call it.

It is reported that you, Sir, are to have an example farm under your direction, in connexion with the professorship of Agriculture. If it be so, I believe one of the best experiments you could make, would be to seed down a piece of land with as extensive a collection of grass seeds as you could obtain, not forgetting the rib grass, or long plantain, from Britain. I believe the best possible mixture are the grass seeds found in the farmers' hay-lofts in England. I have often collected bushels after the winter was over, in my father's hay-lofts, to sow in the spring, and we always found that they filled the ground well with every needful variety. Seeds ought to be new, for after they become more than a year old, they do not half grow.

It will be but of little use to improve stock, except we improve pastures. Every farmer will acknowledge *Short Horns* to be the most splendid cattle in the world, but they are the aristocracy of the farm-yard, and must have splendid accommodations and food, or they will quickly degenerate. If we cannot have improved pastures,

Devon cattle or the native breed will suit us better. The after grass or fog, as the Yorkshire people call it, was always considered worth the rent of the land in the county of Somerset, where I was born; here all the fog we have is a little second clover. A good cow made about £15 per annum, in butter and cheese, in England; here few make one-third of that sum. After mowing, we frequently bought sheep of the hill farmers, so poor with folding and being kept so thick, that they scarcely could walk home; but in six weeks' feeding, on nothing but after grass, we have had them so fat as to weigh from 25 to 30 lbs. per quarter.

I am very sorry that we have no club here to take the *Agriculturist*, but next year I hope we shall, and learn what practical good you and Mr. Cameron are likely to do us farmers.

I am, Sir,

Yours most respectfully,

WILLIAM HEDGES.

We are obliged to our correspondent for the information and suggestions which his communication contains; and shall be glad to hear from him again upon any matters that have come under his observation as a farmer in this country. It is in this way principally that our Journal can be made the most beneficial to that important class of the community. Farmers residing in different, and often widely separated sections of the country, may interest and benefit each other in a high degree, by the mutual interchange of individual thought, and the results of varied experience. *With this view we are desirous of receiving occasionally short and practical communications from experienced farmers in every Township of Upper Canada.* Our correspondent's suggestion respecting grasses, has frequently occurred to us, and we intend, as soon as practicable, to make some experiments in connexion with that and several other matters, possessing great interest and importance to the farmers of this country. After the next meeting of the Board of Agriculture, we hope to be able to submit to the public the completed arrangements of the Professorship of Agriculture in our Provincial University, and the Experimental Farm connected therewith. The Hon. M. Cameron, we learn, is already actively engaged in preparing for his department.

PECULIARITIES OF THE DESERT.—It is curious to observe the prevalence of the sandy color of the soil in the creatures that have to exist upon it. Sandy-colored eagles devour sandy-colored vipers and lizards which in their turn prey on grasshoppers of the same complexion; and partridges and sparrows, by means of their resemblance to the ground, avoid the prying eyes of the falcons and hawks.—*Melly's Khartoum and the Nile.*

SUMMER FALLOWS.

MR. EDITOR,—

It ought to be the study of all Farmers in these hard times to try to raise such crops as will be most profitable, and at the same time the least likely to impoverish the soil.

I have always been of opinion that the general system of naked Summer Fallows in Canada, altho' a good method of cleaning, are nevertheless a great means of impoverishing the soil. When we take into consideration the fact, that each Summer Fallow is generally ploughed and harrowed, at least three times, during the very hottest period of the year; and when thus turned up so often to the heat of the sun, there can be little doubt that, under the circumstances a great proportion of the Gaseous and Organic matter contained in the soil is exhaled by the action of the heated atmosphere.

Therefore, instead of the naked Summer Fallow, I have for some years past turned my attention to Pea Fallows; which I find, in the first place, to pay best, having two crops instead of one: and in the second place, the land is generally as clear when prepared for the sowing of Fall wheat, as it otherwise would have been by the naked Fallow; and in the third place, I have generally as heavy a crop, and even a larger sample of wheat than by the ordinary system.

The manner in which I labour my Pea Fallows is as follows:—I cross plough the ground in the Fall, in the Spring it is harrowed well first, then it is ploughed into twelve feet ridges, taking care to have as much comb as possible on the furrows, so that the seed may be well covered. Then I sow (if early peas) at the rate of four bushels per acre, or more, if the ground is not clear. For Marrowfats, three bushels will be sufficient if well covered. Three or four days after sowing I roll the ground with a roller, having a box or platform on the top of the frame, upon which is collected all stones, roots &c., which are carried to the end of the land, where the stones are thrown off and the roots are piled up and burned. My early peas are generally cut and taken off the ground about the middle of July, and the land is cross ploughed immediately afterwards. The Marrowfats are a later pea, and are not generally ready to harvest before the last week of July, or the first week of August; but still they are always off the ground in time to admit two ploughings, before sowing the Fall Wheat. By this system I not only have my land clean, but I have also something in my barn, which will make the Americans feel for their purse in the Spring, when they find that their peas have so many holes in them that they won't grow.

I am, Dear Sir,

Yours, &c.,

G. S.

Newcastle, March 19, 1852.

NOVEL APPLICATION OF WATER-POWER TO BELL-RINGING.—The hours of six in the morning and ten in the evening are regularly rung from the spire of St. Peter's Church, Dundee, by a chime of bells produced by the application of water-power to a complicated piece of machinery.



LEICESTER EWES.

The above cut is taken from a steel engraving in the *Farmers' Magazine* for January last.—It represents a pen of Leicester ewes, the property of William Sanday, Esq., of Holme Pierrepont, Notts, England. They obtained the first prize of twenty sovereigns at the Royal Agricultural Society's Show, at Windsor, in July last.

USE OF TAR FOR SHEEP.

Having had some experience in the management of sheep, I propose to say a few words on the use of tar for sheep, as a preventive of disease. I have been in the practice of feeding to my sheep 4 or 5 gallons of tar to each 100 sheep, per year. My plan of feeding is to mix it with salt, by scattering salt in a long narrow trough, and pouring the tar upon the salt. In this way I have no difficulty in getting the sheep to eat it. In addition to this, every time I handle my sheep, except when washing them, I apply a little tar to the nose of each; this external application I deem more important in the summer and fall months, when the gad-fly is troubling the flock.

This is the only article that I have used to prevent disease in sheep for a number of years in which I have been engaged in wool growing; the result has been that I have not lost one per cent. of my sheep, by diseases of all kinds, annually. When I sheared my sheep last May, I had over 600, and I am not aware of losing but one since. I ascribe the uniform health of my flock to the free use of tar.

I make these statements, that others may have the benefit of my experience.

Respectfully yours,

—*Ohio Cultivator*.

WM. S. WRIGHT.

DEEP PLOWING.—“How does deep plowing improve the soil?” asks an inquiring farmer. The simple answer is, by increasing its depth. “But,” says the inquirer, “if I plow deep I shall turn up the clay and inert earth that contain no nourishment for plants.” Well, if clay and inert

earth, containing no nourishment for plants, lie so near the sun face as to be within reach of your deepest working plow, they ought to be turned up and exposed to the influence of sun, air, frost, rain, snow, and manure and cultivation, that they may become rich. “But,” says the inquirer, (it is strange how many “buts” such people can find for use on such occasions,) “it would require too much hard work and too long a time to do this, would it not?” That depends upon whether you would prefer five dollars profit per acre now, and forever hereafter, to two or three dollars now, this year and next, and ten or twenty dollars per acre hereafter.

PROTECTING TENDER ROSES.—After trying various modes of sheltering tender roses during winter, including the use of moss, inverted turf, straw, tan-bark covered with boards, &c., none appears to be equal, says the *Albany Cultivator*, to a covering with the branches of evergreens. Plants, but slightly tender, need very little shielding in this way; while those the most susceptible of injury should be encased several inches thick. One eminent advantage which this treatment possesses, is the entire freedom from decay in the bark and stems of the shielded plants, which sometimes results from other modes. Pine, hemlock, white cedar, &c., may be used for this purpose. Where evergreen hedges or screens have been planted, the shearings or clippings may be employed with great convenience.

HORSE POWER DITCHING MACHINE.—Mr. Charles Bishop of Norwalk, Ohio, has invented and taken measures to secure a patent for a good improvement in ditching machines, whereby the old spade method of ditching by manual power is entirely thrown into the shade. His machine is worked by horse power, and is provided with a revolving excavator, the shaft or axle of which lies in the direction of the length of the ditch. The excavator is of a screw form, and is operated by an endless chain.—The ditch is cut of a semi-circular form, and it deposits the cut clay, or other kind of excavated earth in a box, from whence it is delivered at one side on the road by scrapers attached to the endless chain. The machine being propelled forward by a friction wheel, or roller, moving in the ditch, and operated by the excavator's shaft.—*Family Visitor*.

NEW PLAN OF CANADIAN FARMING.

To the Editor of the Canadian Agriculturist.

SIR :

I hope you will give me space in your valuable publication for the following remarks, on the Farming of Canada West as far as I have seen compared with that of England, —proposing some plan to reduce the expenses of Farm work, together with a rotation such as appears to me suitable to the climate and resources of

the country, at the same time soliciting those who have practical knowledge to point out any defects that may occur.

I propose for the sake of example to take one hundred acres of land, 50 acres under actual cultivation—20 under some kind of pasture, and 30 in requisite wood, and shall divide the land under actual tillage into 10 acre fields, and the rotation I propose is as follows:—

5 Acres.	5 Acres.	10 Acres.	10 Acres.	10 Acres.	10 Acres.
Turnip or Mangold Wurtzel.	Potatoes, Corn, Carrots, Peas or Cabbage.	Oats or Barley, or both with Clover.	Clover Hay.	Clover Hay or Pasture.	WHEAT.

The 20 acres in pasture may be renewed every five years, by taking up one half and bringing it into the rotation taking care to put some other grasses into the land when it is to be left for pasture.

I prefer seeding down with Oats or Barley, because the Clover gets a start at the same time the weeds do if there are any, (and where are there none?) and by putting plenty of seed in there is every probability of keeping them well under.

The quantity of ploughing necessary for this rotation is annually as follows:—

- 10 Acres of Clover to be turned for Wheat.
- 10 Acres after Peas and Turnips, &c., to prepare for the spring sowing of Oats or Barley.
- 10 After wheat to prepare for Turnips, &c., making only 30 acres of fall ploughing, or a little over a month's work.
- 10 Acres in Spring for Barley and Oats, &c.
- 10 Acres for Turnips, Wortzel, Peas, &c.

Fifty acres in the course of seven or eight months are most easily done by one man and a pair of Horses. In this rotation should the land require a fallow, it can be done in the second clover year without at all interfering with the course proposed; a point of importance to the Farmer.

The general method of Farming in Canada, appears to me, to be most exhausting to the soil, and unproductive to the Farmer; on the same sized clearance as above he has generally half under Wheat and summer fallow, half under Peas and Oats. Now let us see how much work he has to do with the plough.

- 12½ acres in Fall Wheat.
- 12½ acres under fallow, giving 37½ acres to plough.

- 12½ acres to be ploughed in the Fall, and again in the Spring for Oats.
- 12½ to be ploughed in the fall and again in the Spring for Peas, making in all 87½.

Now it is almost impossible for the farmer to do this and get his crops sown and harvested. He therefore dispenses with the fall ploughing altogether and most frequently with one summer fallow ploughing, leaving his land when the wheat comes off almost as dirty as before he started. Am I too severe?

I am of opinion that the rotation I propose may be worked with one man and a yoke of oxen with a boy through the summer months, and a mare for hoeing requisite between Turnips, Potatoes, &c., which would not prevent her giving a colt to pay the expenses of her keep.

I shall now give the probable yearly expenses of working the two plans, and also the profits, if any. I shall then compare the expenses with those of England.

1st. The expenses of working the plan proposed for one year in Canada:—

Hire of the man for the year.....	£25	0	0
Board and washing at \$6 per month.....	18	0	0
Boy for eight months at \$5 per month....	10	0	0
Board and washing at \$6 per month.....	12	0	0
Rent of 50 acres cleared land including taxes and statute labor	25	0	0
Yoke of Oxen.....	£15	0	0
One Mare	20	0	0
One Plough.....	3	10	0
One Harrow.....	1	5	0
One Cultivator.....	1	5	0
One Horse Hoe.....	2	0	0
One Waggon	15	0	0
	£58	0	0
At 12 per cent per annum for wear not including repairs.....	6	19	2
Plough points and sundries.....	1	5	0
	£98	4	2

Brought upward	£98	4	2
10 acres of Wheat, 20 bushels required for seed at an average of 3s. per bushel ...	3	0	0
10 acres of Clover, 1 bushel of seed.....	1	5	0
5 acres of Oats, 15 bushels of seed at 1s. 1d.	0	16	3
5 acres of Barley, 15 do. do. at 2s. 6d.	1	17	6
5 acres of Peas, 15 do. do. at 2s. 6d.	1	17	6
1 acre of Potatoes 12 do. do. at 1s. 3d.	0	18	9
2 acres of Turnips 3 lbs of do. at 1s. 10½	0	5	7½
2 acres of Mangold 6 lbs of do. at 2s. 6d.	0	15	0
To hire of a man in Hay harvest for two weeks at 3s. 9d. a day, and 1s. 3d. for his keep	3	0	0
To hire of man in Wheat harvest for one week at \$1¼ per diem.....	1	17	6
To hire of a man for a month to assist in getting root crops housed, and to help in thrashing, &c., including his keep..	5	0	0
To thrashing 10 acres of wheat.....	6	10	0
	£125	7	3½

Peas and Oats to be done by man in winter months and straw fed to the cattle daily.

	£	s.	d.
200 bushel of Wheat at 3s. per bushel	30	0	0
30 tons of Clover Hay at 25s. per ton.....	37	10	0
150 bushel of Oats at 1s. 1d. per bushel....	8	2	6
125 do. of Barley at 1s. 10½d do.	11	14	4½
125 do. of Peas do. do.	11	14	4½
150 do. of Potatoes at 1s. do.	7	10	0
40 tons of Turnips at 15s. per ton.....	30	0	0
60 do. Mangold Wurtzel at 12s. 6d.	37	10	0
20 acres Fall pasture after Hay.....	2	0	0
	£176	1	3

I have in the purchase of seed in this estimate not given the quantity of Clover I consider necessary, by some pounds; 10 lbs. is little enough for this plan, as far as I can judge by comparison.

I now proceed to the other system—i. e. one fourth wheat, one fourth oats, one fourth peas, and fourth fallow—a portion of the grass land will of course be hayed, leaving only a small quantity of pasture. There are now 37½ acres of ploughing to be done, if the land is worked to the same standard as the first system, and that has to be done all at once, or nearly so, at the most busy time in the year and will require two men, two teams, two ploughs, besides the hire of hands to assist harvesting and haying.

To one man by the year	£25	0	0
Board and washing.....	18	0	0
One man for eight months.....	20	0	0
Board and washing.....	12	0	0
Rent of 50 acres of cleared land	25	0	0
To hire of a man for harvesting, &c., at \$1¼ per diem including keep for three weeks.....	5	12	6
To one span of Horses	£30	0	0
One yoke of Oxen.....	15	0	0
Two Ploughs	7	0	0
One Harrow	1	5	0
One Cultivator.....	1	5	0
One Waggon	15	0	0
	£69	10	0
	£105	12	6

Brought forward.....	£105	12	6
£69 10s. at 12 per cent per annum.....	8	6	9½
To shoeing Horses.....	1	0	0
Two tons of Hay at \$5 for their keep....	2	10	0
400 bushel of Oats for Horses and Oxen at 1s. 1d.....	21	13	4
Plough points and sundries for 2 ploughs	1	17	6
TO PURCHASE OF SEED.			
25 bushels of wheat for 12½ acres at 3s....	3	15	0
37½ do. of Oats for do. at 1s. 1d.	2	0	7½
37½ bushels of Peas for do. at 2s. 6d.	4	13	9
To thrashing 12½ acres of Wheat.....	7	0	0
	£158	9	5½

Oats and Peas as before done by hand in the winter months.

VALUE OF CROPS.			
250 bushels of Wheat at 3s. per bushel..	£37	10	0
375 do. Oats at 1s. 1d. do. ..	20	6	3
312½ do. Peas at 1s. 10½d. do. ..	29	5	½
	£87	1	3½

EXPENSES OF PLAN PROPOSED.			
<i>Dr.</i>			
To Expenses.....	£125	7	3½
<i>Cr.</i>			
By Returns.....	£176	1	3
Profits.....	£50	13	11½

EXPENSES OF FALLOW.			
<i>Dr.</i>			
By Expenses	£158	9	5½
<i>Cr.</i>			
By Returns.....	£87	1	3½
Loss	£71	8	2½

Now this would allow of a failure of a root crop every other year without loss—or the root crop might be grown only every second year. In fact any plan would appear better than that pursued at present.

I now compare the same system in the two countries, and also give the price of stock, wool, meat, &c., as near as possible.

I must also state that in the eastern division of Kent which these calculations are made for, land giving the yield stated cannot be hired for the sum charged. Sheep it would be almost impossible to buy for less than 25s. each, they get no more for the wool there than we did here last year, and not often so much. Of this I am certain that wool which will here realize 1s. 3d. would not there bring one shilling sterling, and many are the sheep here to be bought for 6s. str., whose wool would bring 1s. str. per pound.

As for the difference of meat it is sold in England at 4s. the eight pounds for good quality, which is only about twice the price of mutton here, the skin any old country butcher will tell you is worth next to nothing, and the tal-

low is above the price of English tallow. Why then do farmers in Canada leave the sheep in the Concessions for me to ride and fall over in the night, and send them burr hunting in the day? Having made these remarks, I shall at once proceed to a comparison between a 50 acre farm in Kent and a 50 acre farm in Canada, in the County of Oxford. Then conclude with a few remarks on the subject of Mangold Wurtzel growing and its yield per acre in England, Ireland, and the Island of St. Helena, from accounts worthy of credit.

BALANCE SHEET UNDER PROPOSED SYSTEM IN ENGLAND.

TURNIPS.			
Dr.		Cr.	
To Rent of 10 acres of Land in England, including Rates, Taxes, and Tythe for one year.....	£30 0 0	Value of the Crop at 12s. per ton	£120 0 0
To ploughing 10 acres of land in the fall	4 0 0	Do. Green tops for Cattle.....	2 0 0
To manure do. do. thirty loads to the acre at 2s. 6d. per load.....	37 10 0		
Ploughing ten acres of land in the Spring	4 0 0		
Harrowing do. do.	0 10 0		
Sowing Turnip seed	1 0 0		
Pulling, cutting tops, and storing 50 days at 1s. 6d. per day	3 15 0		
Twenty days one man with horse and cart at 5s. per day.....	5 0 0		
Ten quarts af seed at 2s. per quart	1 0 0		
Expenses.....	£86 15 0		£122 0 0
WHEAT.			
Dr.		Cr.	
To rent of ten acres of land as above....	£30 0 0	Value of the crop 40 bushels to the acre..	£95 0 0
One ploughing for Wheat.....	4 0 0	Straw 40s. per ton and 2 tons to the acre.	40 0 0
Harrowing for Do.	0 10 0		
25 bushels of Wheat at 5s. per bushel....	6 5 0		
Sowing do.	0 5 0		
Harvesting do.	5 0 0		
Thrashing do.	10 0 0		
Marketing do.	1 5 0		
	£57 5 0		£135 0
BARLEY.			
Dr.		Cr.	
To rent of 10 acres of land as above	£30 0 0	By value of the Barley 40 bushels to the acre	£70 0 0
Ploughing Fall and Spring for Barley...	8 0 0	Straw 1½ tons to acre 20s. per ton.....	15 0 0
Harrowings.....	2 0 0		
Seed Barley £5 5 0 Seed Clover £3. 15s.	9 0 0		
Sowing seeds.....	0 10 0		
Harvesting Barley £3 15s. Thrashing £5.	8 15 0		
Marketing	1 5 0		
	£59 10 0		£85 0 0
HAY.			
Dr.		Cr.	
To rent of 10 acres as before.....	£30 0 0	By value of Hay 80s per ton, 1½ tons per acre	£70 0 0
Harvesting Hay and stacking.....	6 0 0	Of after crop as pasture.....	2 0 0
	£36 0 0		£72 0 0
HAY.			
Dr.		Cr.	
To rent of ten acres as before.....	£30 0 0	By value of crop 80s. (two years old) per ton, 1½ tons per acre.....	£60 0 0
Harvesting and stacking Hay	6 0 0	Value of after crop.....	2 0 0
	£36 0 0		£62 0 0

RECAPITULATION.

Dr.			Cr.		
Turnips	£86	15 0	Turnips	£122	0 0
Wheat	56	0 0	Wheat	135	0 0
Barley	59	10 0	Barley	85	0 0
Hay	36	0 0	Hay	72	0 0
Hay	36	0 0	Hay	62	0 0
Profits	200	10 0			
	<hr/>			<hr/>	
	£476	0 0		£476	0 0

BALANCE SHEET UNDER A PROPOSED SYSTEM IN CANADA.

TURNIPS.

Dr.			Cr.
To rent of 10 acres of land in Canada			Probable value of the crop 10s. per ton £100 0 0
West including taxes.....	£ 5	0 0	(The cheapest food I think grown)
Ploughing in the fall 10 acres of land at \$2	5	0 0	Green tops for cattle, &c.....
To manure 10 acres, 15 waggon loads to			
acre at 6d. per load.....	3	15 0	
To early Spring ploughing at \$1½ per acre	3	15 0	
Harrowings.....	1	10 0	
Sowing seed	2	0 0	
Pulling, cutting tops and storing at 3s. 9d.			
per day	7	10 0	
20 days one man with Horse and cart 7s.			
6d. a day	7	10 0	
Seed	1	0 0	
	£37	0 0	£100 10 0

BARLEY.

Dr.			Cr.	
To rent of 10 acres of land as above....	£	5 0 0	By value of Barley 30 bushels to acre at	
Fall ploughing.....		5 0 0	1s. 10½d	£28 2 6
Spring do.		3 15 0	3 tons of straw to acre at 2s. 6d. per ton..	3 15 0
Harrowings		1 10 0		
30 bushels of Barley at 2s.....		3 0 0		
One bushel and a half of Clover.....		1 17 6		
Sowing the above.....		0 11 3		
Harvesting		5 0 0		
Thrashing		4 0 0		
Marketing		2 10 0		
		<hr/>		
		£32 3 9		<hr/>
				£31 17 6

HAY.

Dr.			Cr.	
To rent of 10 acres of land as above....	£ 5	0 0	By value Hay £1 5s. per tons 1½ ton to acre	£18 15 0
To Harvesting Hay.....	6	5 0	Of after feed.....	1 5 0
	£11	5 0		£20 0 0

HAY.

Dr.		Cr.
To rent of 10 acres as before.....	£ 5 0 0	By value of Hay 1½ tons to acre..... £18 15 0
Harvesting hay.....	6 5 0	After crop..... 1 0 0
	<hr/> £11 5 0	<hr/> £19 15 0

WHEAT.

Dr.		WHEAT.		Cr.	
To rent of ten acres.....	£ 5 0 0	By Value of Wheat 20 bushels to acre, 3s.			
Fall ploughing.....	5 0 0	per bushel.....	£30 0 0		
Seed Wheat at 3s. per bushel 1½ to the acre	2 5 0	Straw 4 tons to acre at 2s. 6d. per ton....	5 0 0		
Harrowings.....	1 10 0				
Sowings.....	0 7 6				
Harvesting.....	3 15 0				
Thrashing.....	3 15 0				
Marketing.....	2 10 0				
	<hr/> £24 2 6			<hr/> £35 0	

RECAPITULATION.

Dr.			
Turnips	£37	0	0
Barley	32	3	9
Hay	11	5	0
Hay	11	5	0
Wheat.....	24	2	6
Profits	91	6	3
	£207	2	6

			Cr.
Turnips	£100	10	0
Barley	31	17	6
Hay	20	0	0
Hay	19	15	0
Wheat	35	0	0
	£207	2	6

It appears to me strange that when any plan is proposed and the feasibility of it is shown that no one has energy enough to try the scheme, and one answer is made to all hints on improvement, *It won't pay*. Having now shown, and I think fairly, how much better the proposed plan is to that pursued generally, and also the difference between English and Canadian Farming, looking at the price of stock of all common kinds, and their increased value when fed, I hope no one will blame me in advising the farmers even should wheat bring its 5s. a bushel, to follow my plan, because I will promise them that they will have much more to the acre, and can also grow it for centuries in this way. But let them go on in the way they are doing and I predict it will be in Canada as it was in the olden States, about 15 bushel to the acre will be the average crop.

I will now give a few extracts from the Oxford *Encyclopædia* on the subject of the Mangold Wurtzel. Turnips may be grown anywhere, and I might also say to any amount of tons per acre, for the proof which I refer you to a work published in England, viz: *The Farmers' Magazine*.

"We are told that this plant is not affected by excessive drought and that no insects will touch it. The leaves which measure from 30 to 40 inches in length and 52 to 25 across are usually gathered once a fortnight, both leaves and roots are good for man and beast. Willis's Calendar for 1814, says, Bernard Howard, Esq., grows annually 10 or 12 acres, obtaining the acreable produce of from 40 to 50 tons. Col. Bentson, Governor of St. Helena, grew it extensively the quantities then obtained on experimental ground were immense—after the rate of 66½ tons per acre, manured with hogs dung and ashes—77¾ with dung of sea fowl—without manure it only gave 19¼ tons."

To shew its powers of vegetation and also its endurance of drought, I copy the following:

"On a barren ridge between two deep ravines, on which from its declining surface no moisture could be retained, Col. Bentson caused 16 different sorts of seeds to be sown at the same time, viz:—Mangold Wurtzel, Coffee, Cotton, Wheat, Barley, Oats, Peas, Buckwheat, Spring Tares, Lucern, Burnet, Sainfoin, Silla, Chicory, Rape and Sun-flower. For a long time there was no sign of vegetation, at length seven months after sowing, being soaked by rains, the Mangold Wurtzel appeared one connected line of thriving plants, and not a plant of the rest ever appeared."

I have myself proved the strong vegetating powers of the plant under a hot Canadian sun in July, when I transplanted some which were unshaded, set in quick sand as it is called, thrown

out in the process of making a drain, they were to all appearance quite dead, but after some time a shower of rain made them look quite green, and when pulled they averaged 5 lbs. each plant. I must now conclude my long letter, hoping to have a reply from some practical man, which is one great reason of my troubling you with the effusions

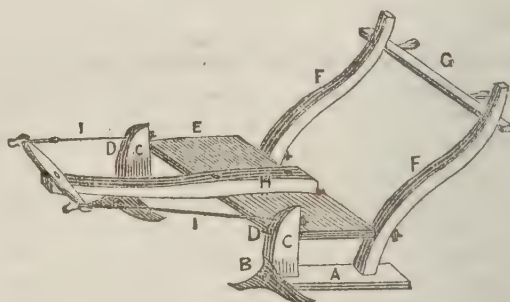
Of yours,
Dear Sir,

THOMAS H. WATT, M.R.C.S.E.

Woodstock, March, 1852.

A DOUBLE FURROWER.

I send you the plan of a Double Furrower, which we have used five years. We find it very handy. It furrows twice as much as the old fashioned way. It can be set two, three, or four feet apart.



Explanation of the Cut.

- A. The shoe made of plank, 2 inches thick.
 - B.B. Shares; same as those on a double mould board plow, bolted on the shoe.
 - C.C. These pieces are made of 2 inch plank, and morticed in the shoe.
 - D.D. These rods are made with heads on one end, and nut on the other. They pass through the station, C. C., through the plank, E., and the upright, F., which forms a hinge; the holes are a little larger than the rods, and work freely.
 - G. Crosspiece, on which are two handles; it is bolted loosely on the uprights, and works same as plank, E.
 - H. Beam bolted firmly on the plank, E.
 - I. Rod to stiffen the beam.
- The plank uprights and crosspiece, are 1½ inch stuff.
- It is necessary to have a wheel on the beam, the same as on a plow.—*Cultivator*.

A SHORT CREED.—A sceptical young man, one day conversing with the celebrated Dr. Parr, said he would believe nothing which he could not understand. "Then, young man, your creed will be the shortest of any man I know."

HORTICULTURE.

GUELPH HORTICULTURAL SOCIETY.

We observe with much pleasure that a Horticultural Society has recently been formed in this place;—a fact that speaks well for the taste and public spirit of the inhabitants of this thriving town and neighbourhood. The county of Waterloo, although of comparatively recent settlement, is well known for its enterprising farmers and breeders of improved stock; and now it seems that earnest attention is being directed to the subject of gardening, which cannot be otherwise regarded than as the natural ally of improved farming. We wish the Society every success.

GLASS WALLS FOR GARDENS.

The use of glass for garden walls, in lieu of brick or stone, is being experimented upon in England; and, if it should be found to answer, the additional expense involved by such a substitution of material, will not prevent its introduction, where Horticulture can boast of so many spirited and wealthy patrons. The sides of the wall are constructed of thick sheet glass, manufactured for the purpose, a sufficient intervening space being allowed for trees, which are trained to iron wires. Such structures must be infinitely more elegant in appearance than common walls, and have many advantages as regards regulating the degree of heat and light, and the important processes of ventilation. The price at present varies from £1 1s. to £1 6s. per lineal foot, for walls 9 feet high, glazed with 16oz. sheet glass. The *Gardeners' Journal* observes: "They are, of course, as yet wholly untried; and for the present, the wisest course for those who wish to be near the truth will be to make some deductions from those who pronounce them to be perfection, and a like deduction from those who *pooh, pooh!* and call them toys; for they are neither the one nor the other. The thing is right in principle; and if the present application be less perfect than future experience may ultimately make it, that forms no valid argument against the present effort. The first step once taken is always something gained. The idea contains enough of promise to claim for it at least a fair trial."

NAMES OF PLANTS.—The importance of having all plants, including fruit trees, properly named even in small gardens, cannot be too clearly pointed out. A plant may have beautiful foliage and flowers, but without a name it yields comparatively little interest.

Every plant has a history of its own, and the first step towards obtaining a knowledge of that history is its name; the next its native country. A garden of plants without names is like a library of books without their exterior superscriptions.

OBSERVATIONS ON THE GROWTH OF PLANTS IN ABNORMAL ATMOSPHERES.

As oxygen is the most important constituent of the atmosphere, so far as animal life is concerned, so it is on the carbonic acid, ammonia, and aqueous vapour, that the vegetable world is eminently dependent. Do the oxygen and nitrogen of the air play no important part in the process of vegetation? The following experiments, with a view of settling this and similar inquiries, have been published by the Messrs. Gladstone:—A pansy lived for 24 days in an atmosphere of hydrogen, containing 5 per cent. of carbonic acid; one similarly placed in an atmosphere of common air, remained healthy for a longer period. Five onions, just commencing to sprout, were severally placed in carbonic acid, carbonic oxide, coal gas, air containing 8 per cent. of light carburetted hydrogen, and ordinary atmospheric air. The germination in the first two was entirely stopped; while the hydro-carbons appeared to considerably accelerate the growth of the vegetable. The plants in each case lost weight. A pansy in flower, a young stock, and a grass plant, were placed in pure nitrogen gas. The first two soon died; but the grass was left growing a month after the commencement of the experiment. Another pansy was placed in a mixture of hydrogen and oxygen gases, in the proportion requisite to form water. In order to imitate the balance which exists in nature between animal and vegetable life, some flies were introduced, along with some sugar to serve as their food. No change, for the space of two weeks, was observed in this plant. Owing to the specific gravity of the mixed gases, the flies were unable to mount on the wing, or make the usual buzzing noise; but the substitution of hydrogen for nitrogen in the atmosphere had no marked effect upon their breathing, thus confirming the observations of Reynault by an instance drawn from *articulata*.

At the British Association, Mr. Daubeny stated that he had ferns growing in an atmosphere containing one per cent. of carbonic acid in excess above that ordinarily contained in air, and although it was thought similar ferns growing under the same conditions, but without carbonic acid in excess, were the most luxuriant, it appeared that they thrived well in this atmosphere. Ferns supplied with water containing one per cent. of carbonic acid, grew much more luxuriously than those which were supplied with pure water, so that the conclusion might be come to, that, although very great quantities of carbonic acid were injurious to plants, yet that, when present in water from one to five per cent., it was beneficial.—*London Chemist*.

THINKING AND SPEAKING.—We must not always speak all that we know—that were mere folly; but, what a man says, should be what he thinks; otherwise, it is knavery.

THE SCIENCE AND PRINCIPLES OF GARDENING.

—
NO. IV.

THE AGENTS WHICH AFFECT PLANTS.

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4.—WATER.

This agent is composed of two parts of hydrogen gas and one part of oxygen. In its simple state, it is therefore not unfitted partially to sustain plants. But it is very rarely found thus free from other ingredients, and is capable of taking up all the various matters which go to preserve and develope life. It is, in short, the principal medium by which plants feed.

Water exists both in a liquid and fluid state, according as it is found in or upon the earth, or the atmosphere. It is always more or less naturally present in soils, and is discharged from the atmosphere, to which it travels by means of evaporation, in the form of rain, dew, &c. Without water, vegetables would speedily die. It must therefore be supplied when it is naturally lacking, and to such plants as are kept in an artificial state. The soil in which plants grow should be constantly moist, but not wet. In extremely wet soils, there can never be sufficient heat or air, and the vessels of plants placed in them will soon become turgid and diseased. This is the basis of all draining, whether in the natural ground, or in pots.

A great variety of nutritive matters are conveyed by nature to plants through the medium of water, and may be applied artificially by the same means. As only liquids can be absorbed, nothing that will not dissolve in them can be expected to enter the plant, or do it a particle of good.

Water is very necessary and very refreshing to the leaves of plants, to wash away dust and dirt from them and keep their pores in healthy action; besides checking any extravagant drain on their resources in dry weather. Rains and dews are beneficial in their ways, for the most part, and in artificial water, whether given to plants in the open ground or in pots, syringing over the leaves will be an important addition, without which common watering at the roots would be of *comparatively* little avail. But it should be seen that the water, however applied, is not of an injurious nature, and does not contain deleterious matter.

5.—ELECTRICITY.

For the absence of any definite knowledge of this mysterious power, it can only be mentioned as a thing that acts decidedly and strongly upon plants. There can be no doubt that it promotes healthiness, when present in only its ordinary condition and quantity. But it also *seems*, at least, to occasion disease, and to be in some sort productive of what are popularly termed "blights," which are sometimes in no way attributable to insects. How far it may go, in its usual state, towards composing or upholding vegetable life, it is impossible to say. Neither can it be determined by any means at present known or understood, to what extent (if at all) it has been productive of the disease which has so unhappily become notorious as the "potato blight," though

this is most commonly ascribed to atmospheric influences. But as the further discussion of this principle could not tend to any positive practical result, it may be dismissed with a simple reference to the known potency of its action on vegetable life.

6.—WEATHER.

The wonderful variations of the weather consequent on atmospheric changes, and forming the climate of a district, exert a powerful agency upon plants, and require to be well considered and studied. The barometer, thermometer and even the hygrometer, to measure the heat and moisture and calculate the changes of the atmosphere, will be useful instruments to the cultivator, as indicating, what the senses, however nicely tutored, can never so accurately make known. The occurrence of frost, reminding him of the need of protection for some plants—of rain, admonishing him to gather in crops that require to be stored while dry, or to plant such as will be benefitted by moisture—of gales of wind, pointing out the necessity of shelter and support—may thus often be foreseen and provided against. A few simple rules, such as a good almanac will furnish, relating to the leading signs of the weather, may be of great service in gardening.

Frost commonly occurs when the sky is clear and during the time the moon is above the horizon, or after hail storms. A lurid redness in the sky about sun-rise, or a very sudden and extensive fall of the barometer, portends violent winds. Rain generally follows a heavy gale, or a sudden fall or rise in the temperature; and cold showery weather mostly succeeds to thunder storms. In summer, rain seldom comes with the first cloudiness after a week or two of drought, but is lingering and tardy in its arrival. Very low clouds, however thin, are commonly charged with rain.—Near tidal rivers, or the sea, a continued rain may be expected if it commence steadily just about the occurrence of high water.

Such rules might easily be extended to a great length, were they of more universal application; but different localities have each various weather symptoms; and general directions of this sort are not entirely and at all times to be depended on. They are only useful as common (not invariable) guides.

7.—SOILS.

These, as far as the mere matter of which they are made up is concerned, are of little consequence in themselves. But they are of the highest value as the means of conveying other things, and may contain ingredients which plants will largely feed upon. They may be considered with reference to their texture, and their capacity for being pervaded by roots, or for receiving liquids and gases and transmitting them to the plants.

The mechanical properties or texture of soils are of first concern. No soil that is not open, and comparatively unretentive of the latter, will ever be fit for growing plants in unless it can be reduced to a better state by art. Stiff and unctuous clays, with close and fatty bog earth, are entirely unsuitable for the cultivation of plants, until they are thoroughly broken up, and drained, and pul-

verised, and mixed with lighter ingredients. The mere draining and working of bog soil will do a great deal towards improving its texture. But clays will require long tillage, and the liberal use of such things as coal, ashes, sand, lime, and stone rubbish, light manures, or sandy peat, to bring them at all into a good condition. And even with these much time and patience will be demanded. Throwing them up in ridges during Autumn, and leaving them thus till Spring exposed to the action of the Winter's frosts will be greatly conducive to their pulverization. Very light sandy soils, on the other hand, possess faults of texture of an opposite description, though they are much more easily remedied. They give off water too freely, admit air too thoroughly, and become parched and dry in the Summer, not being able to sustain any crop whose roots lie near the surface, or any strong-growing kind of plant. Their defects may be corrected by the application of marl and the clays, and by the use of such manures as cow and pig dung. They should never be ridged up in Winter, nor turned up more than is really necessary.

The best kind of soil for garden purposes is a moderately strong light-coloured loam, or such an alluvial earth as is produced by deposits from streams and rivers. This will be open, if properly worked, and yet never become dried up in ordinary summers. It will possess sufficient substance not to be soon impoverished, and may at any time be got into new "heart" by manure. Chalky soils are often, however, good; and possess the merit of keeping away many insects. But soils that are gravelly are mostly poor, and easily dried up, and unsatisfactory as to produce, and obstructive of the roots of growing crops.

The mineral part of the soil, which is composed of clay, lime and flint-earth, in the form of sand and gravel of various degrees of fineness, together with, sometimes, magnesia, iron, and a few other metals, contributes little or nothing to the nourishment of plants. These portions of the soil appear to be chiefly used mechanically or chemically, in improving the texture and distributing the more nutritive parts, or in mixing with other things, or operating upon them, to produce nourishing compounds.

On these principles, we may easily account for the barrenness of stiff clays, dry sands, and, more particularly, soils chiefly consisting of granite sand, as those in Arran, and near Plymouth; while in the instance of sand or clay, from basalt or whinstone, as well as from limestone and chalk, when mixed with other soil, the carbonic acid gas tends to promote greater fertility, as in the Lothians, Ayrshire, and Kent. Volcanic rocks, as in the Campagna of Rome, are very fertile for the same reason. No mixture, then, of clay and sand will be productive, without limestone, chalk, or basalt, (that is, whinstone) and, more particularly, without decayed plants and manures.

Some mineral substances, such as iron, are injurious to soils, and, perhaps, all the metals are so when combined with oxygen gas or acids. Many good soils, it is true, contain iron, known by the reddish rusty colour it imparts; but their

fertility appears not to be owing to the iron, but to exist in spite of it.—*Kemp's Principles of Gardening.*

THE VALUE OF STEAM AND RAILROADS.—The value of Ocean Steam communication, and Railroad conveyance is already being experienced in Bytown. Two of our enterprising merchants lately sent an order to Leeds, in England, for a large quantity of goods, and in less than fifty days from the date of the order, the goods were received in Bytown, although they had to be manufactured after the order was received in Leeds. So soon as our own Railroad is completed, goods can be delivered in Bytown in from two to three weeks from Britain, and at as low rates as to the Montreal importers. It will be necessary only to have a bonding warehouse here, to secure to the Bytown merchants, all the advantages that go to make up the sources of profit to the importers in the Atlantic cities. And instead of being obliged to provide six months' or a year's stock at once, and lose the use of the money invested in goods that must lie over for months, orders could be received at all seasons at reasonably low rates of cost.—*Bytown Citizen.*

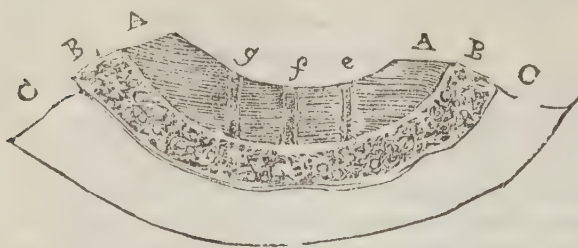
A LITTLE LEARNING IS A DANGEROUS THING.—It is universally admitted that the first draughts of knowledge are apt to intoxicate the soul. A deeper acquaintance with the mysteries around him may indeed tend to humble any man, by fixing his eyes on his own absolute lack of knowledge, rather than on his relative superiority. But as he first emerges from the mere level, it is rather with those below him than with the heights which soar far above, that he is disposed to contrast his standing-place: and so the lowest eminence may swell easily into a mountain, and the half-learned man may be fearfully elated, with an amount of knowledge which would seem to one above him to be nothing but a marvellous ignorance.—*Bishop Wilberforce's Sermon at Oxford.*

"POUR IN KNOWLEDGE GENTLY."—Plato observed that the minds of children were like bottles with very narrow mouths; if you attempted to fill them too rapidly much knowledge was wasted and little received; whereas with a small stream they were easily filled. Those who would make young children prodigies, let them act as wisely as if they would pour a pail of water into a pint measure.

RUSSIA A NATION OF MANUFACTURERS.—Commerce is, moreover, a thing so natural, so indispensable to Russian life, that despite climate and despotism, industry takes gigantic strides. Now from Moscow to the Black Sea all the villas are transformed into factories, all the serfs into workmen. The highest nobility has become manufacturing. Princes, generals, have become cotton spinners and cloth makers. Industry presents such advantages that there is still a profit for nobles without capital to borrow money at 6 per cent. from the Lombard. In 1832 there was at St. Petersburg but one merchant for every 48 inhabitants, and at Moscow one out of every 54. This figure has increased tenfold at Moscow.—*Roberts' Monde Slave.*

CLEANING CHINA AND EARTHENWARE.—They should be washed in plenty of soap and warm water, rinsed clean in a second bowl of water alone, either warm or cold, should be then turned down to drain, and afterwards wiped dry with linen tea-cloths. Settlements of any liquid which have been suffered to dry up at the bottom of earthen vessels, may be dissolved by a little pearlash and water, or with soda instead of pearlash.

SCIENTIFIC.



ARTESIAN WELLS.

A correspondent having sent us some inquiries respecting the conditions under which Artesian wells act, we have had the above cut engraved; which, with the following description, condensed from the best authorities, will, we trust, prove satisfactory.

Artesian wells derive their name from the fact that as early as the beginning of the twelfth century, artificial borings for spring water were successfully made at great depths, in the French province of "Artois;" where no appearances of springs could be discovered at the surface. The great advantage which they offer is that of enabling us to procure a copious, and frequently a continuous, supply of pure water, from depths, and under conditions, which would either preclude our sinking a well altogether, or without such an expense as would be impracticable. The plan has been adopted with success in various countries, where the conformation and character of the stratification are favourable;—a few remarkable instances we shall notice presently.

In the Tertiary formation resting on the chalk, such as the London and Paris basins, these wells have been made to immense depths, and never cease in sending up large supplies of water. The above cut represents the action of such a well made by boring through the impervious clays on which the city of London is built, to the subjacent stratum, consisting of loose, porous materials, resting immediately on the chalk. The upper stratum, *a, a*, rising to the surface, consists of impervious materials, denominated the London and plastic clays;—*b, b*, is a porous deposit of sand and gravel, through which water finds a ready access, either downwards by its own gravity, or upwards by hydrostatic pressure;—*c. c.* represents the chalk, which is of immense thickness, of a retentive

character, and the whole deposits forming a basin-like structure. Now it is obvious that the water which falls on the chalk hills, *c. c.*, cannot penetrate that stratum, it may accumulate and form subterranean reservoirs, and must, by continued pressure, be forced into the porous bed above it, *b. b.*, which becomes thoroughly saturated; and nothing but the impervious stratum of clay above, *a. a.*, prevents the water from reaching the surface. Now borings made through this retentive stratum into the gravelly beds beneath, as at *d. e. f.*, the water contained in those beds will be forced to the surface, and frequently many feet above it, in obedience to the well known law of hydrostatic pressure. In a word, the water will rise in the pipes to a level with the source of its supply. There are in most countries several circumstances and several geological conditions by which Artesian wells may be formed, but the principle is the same in all, and the modifications must be decided on by the Civil Engineer, in accordance with the actual geological phenomena of the particular locality.

The Artesian well completed a few years since at Grenelle, one of the suburbs of Paris, at the suggestion of a number of scientific men, is worthy of a brief notice; showing as it does the intimate connexion which exists between a knowledge of geological science and the most important wants of daily life. This work was commenced in 1834, with an auger of unusual dimensions (being about a foot in diameter) and as the undertaking progressed, the different underlying formations were successively passed through with augers diminishing from 9 to 6 inches aperture. At 1,500 feet, no water was obtained; and the Government began to be disheartened. At the earnest entreaty, however, of M. Arago, the work was proceeded with, and at an additional 300 feet (making the entire depth 1800 feet) the rushing up of a vast body of water offered the most satisfactory proof of the correctness of the principles on which the work was commenced. This spring has lost none of its original force or quantity, and continues to supply about *half a million of gallons*, in twenty-four hours, of perfectly limpid water!

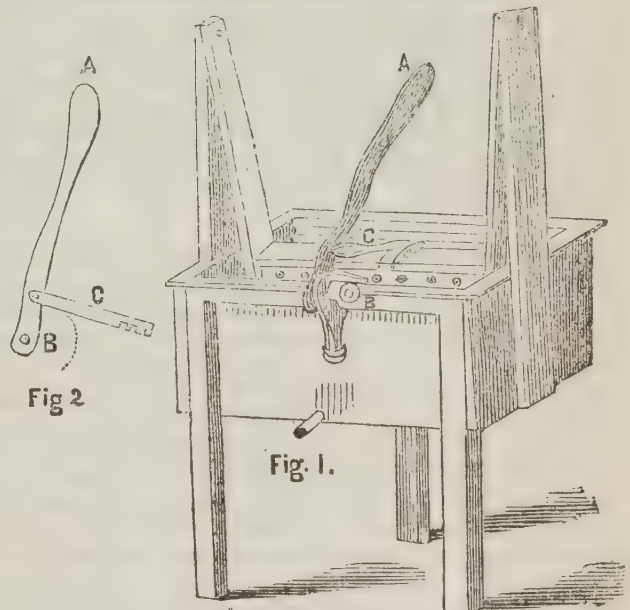
In the neighbourhood of London, water has generally been obtained by borings from two to

six or seven hundred feet, and it is in all cases fresh. In several parts of the Western States, borings have been successfully made for salt water as deep as 800 or 900 feet. In the cities of New York, Baltimore, Albany, and in various parts of New Jersey, &c., borings for fresh water have been carried, and in most instances with success, to the depth of nearly 400 feet, though water has usually been obtained at a much less depth. An excavation in the city of New York, 100 feet deep and 16 feet diameter, yields 8000 gallons daily; and another in the same city, 442 feet deep, yields 44,000 gallons daily (*Hitchcock*).—The deepest Artesian well in North America, is probably the one recently completed at Charleston, S.C., which is said to have reached nearly 1000 feet.

The deepest well of this kind, or indeed of any other, if we except those reported to exist in China, is the one commenced in 1832, near the Baths of Kissengen, in Bavaria, for the purpose of supplying saline water for the manufacture of salt. On August 12th, 1850, the auger penetrated the earth to the immense depth of 1,878½ feet, when a column of salt water was forced out with such prodigious power as to elevate it 58 feet above the surface of the ground! The water is remarkably clear, and has a temperature as it issues from the surface of 90° F., charged with 3½ per cent. of pure salt, at the rate of 100 cubic feet per minute. A large quantity of carbonic acid gas was met with at a depth of 1,680 feet, at a junction of strata consisting of gypsum and sandstone; this gas will in some measure account for the great force with which the water is ejected above the surface. It is thought that an immense stratum of carbonic acid gas underlies the whole valley of Kissengen, imparting to the springs in the vicinity a peculiarly piquant and pleasant character.

The temperature of the earth is found to increase, though not always in a uniform ratio,—as we descend, and it has been inferred by natural philosophers from this and other considerations, that the central mass of the globe, which must be of very great density, is in a state of perpetual incandescence, so that we who occupy the crust may be said to dwell on the shell of a mass of molten materials. Careful experiments made with the water of the Charleston well, show an average temperature at the present depth (952 feet) to be 82½° F.; the mean temperature at the surface being 65° F. This result is not in agreement with the one obtained at the Grenelle well, near Paris,—the depth of which is, as before stated, 1800 feet; the mean temperature of the water being 83° F. and that at the surface 51° F. (*Scientific Annual*, 1851.)

It is observed by Dr. Buckland, in his *Bridge-water Treatise*, that, until recently, these borings have been generally performed by means of a continuous iron rod, sharpened like a drill at the lower end. But a far more convenient and economical method, which has long been in use in China, has lately been adopted; viz., to use a heavy cylinder of iron in the same manner, by means of a rope attached to its upper end; a borer with valves being connected with the lower end, for bringing up the comminuted materials.



WASHING MACHINE.

A boy ten or twelve years of age will work this machine with great facility, and it requires *not a third* of the labor of rubbing on the best wash-board. It is worked by an alternating motion of the lever A, turning on the hinge or pivot B, and communicating thrusting motion to the bar C, which moves the perforated board like the swinging of a pendulum in the trough. The leverage is precisely like the elbow-joint of the old-fashioned printing press, and hence the box should be strong, for the pressure exerted against the side is enormous. The notched end of the bar C enables the operator to regulate the space occupied by the clothes. The levers are all made of cast-iron. The whole cost of one of these machines is five or six dollars. We know of no good washing machine worked by horse power.

A wringing machine for bed-clothes, is made by providing a shallow trough about seven feet long, set on legs like those of a bench, and one end of which is fixed, directly over the trough, a simple wooden screw-vice. At the other end is a winch (or hand windlass) which is also furnished with a small screw vice. The article to be wrung is secured at its extremities in these two vices, when by turning the winch any degree of twisting may be given, the water pouring out into the trough beneath. Where but few bed-clothes are washed, a shorter trough may be made, wringing half at a time, and serving for ordinary

wearing garments. The trough should be lower at one end, under which a pail is to be set for receiving the water. Most of the water in washed clothes may be pressed from them by means of the washing machine just described, first drawing the plug with which it is furnished.

Since writing the above, we have been favored by a kind neighbor and skilful housewife with the following directions, founded on full experience, for the use of *Crane's Soap*, which we believe is pretty widely disseminated through the country, and which may be had at a moderate price. Our own experience confirms its value, more especially on those occasions when domestics are missing, and the mistress or her daughters are compelled to do their own washing.

After having tried various methods of washing, and numerous varieties of soap, to cleanse clothes with little labor, I have become quite a convert to the efficacy of "*Crane's Patent Soap*" for this purpose. I have used it weekly for three months, and find it *all* that the inventor represents it to be. The ordinary clothing for a family of six persons, is generally washed, rinsed and hung up in the course of three hours.

The process is very simple. I take a half pound of the soap, and slice it into two quarts of hot water, and keep it hot until the soap is dissolved; then pour it into a tub containing ten gallons of water, heated to about 100°. Let them soak half an hour—then rub them slightly with the hands, and if any articles are unusually soiled, I rub them on the board. It is astonishing with what ease every spot is removed. As you rub them out, throw them into a tub or boiler of scalding water, which may be kept hot by adding a dipper of hot water occasionally. Ten minutes in the scalding water is sufficient—then rinse and blue them as usual. The water in which the clothes were soaked may have a quarter of a pound, (or less according to the number of colored articles,) of soap added to it, and a little hot water. Then soak your colored clothes just as the white ones were; scald, rinse, starch, &c., as is usually done. My experience tells me that they do not fade nearly so much as with the ordinary hard soap."—*Cultivator*.

NEW DISCOVERIES.—In London, among the scientific questions of a practical kind much discussed, is that of a patent process for contracting the fibres of calico, and of obtaining on calico thus prepared colors of much brilliancy. It is regarded by chemists as likely to lead to valuable results. In the British Association, it was described as the discovery that a solution of cold but caustic soda acts peculiarly on cotton fibre, immediately causing it to contract; and although the soda can be readily washed out, yet the fibre has undergone a change. Thus, taking a coarse cotton fabric, and acting upon it by the proper solution of caustic soda, this could be made much finer in appearance; and if the finest calico made in England—known as one hundred and eighty picks to the web—be thus acted on, it immediately appears as fine as two hundred and sixty picks. Stockings of open weaving assume a much finer texture by the condensation process; but the effect of the alteration is most strikingly shown by colors; the tint of pink cotton velvet becomes deepened to an intense degree; and printed calicoes, especially with colors hitherto applied with little satisfaction—such as lilac—come out with strength and brilliancy, besides producing fabrics finer than could be possibly woven by hand. The strength, too, is increased by this process; for a string of calico which breaks with a weight of thirteen ounces when not soaked, will bear twenty ounces when half condensed by the caustic soda.

MR. RUTTAN'S REJOINDER TO CARBONIC ACID.

To the Editor of the Canadian Agriculturist.

SIR,—I had hoped that the discussion which had commenced upon so important a subject as the ventilation of buildings, in your popular and wide-spread Journal, would have proved instructive and beneficial to some of your thousands of readers; but the abusive letter of my opponent, contained in your last number, of course puts an end to it, so far as I am concerned.

My friend finds that he has gone quite beyond his depth, and that he has no way of backing out except under cover of vituperation. He is, evidently, some Tyro; for no practised writer or scientific man would so far forget himself as to lose temper to such a degree as to induce him to make use of the hard names and naughty personalities which compose his letter—even though he was worsted in the argument—of which, so far as your correspondent and I are concerned, your readers must be the judges.

So far as I am personally concerned, I cannot regret this abrupt termination of the discussion, for, having been for some years, and being at present, engaged in a very extensive correspondence upon the subject, public and private, in both the United States and Canada, and out of which, I flatter myself has, in a great measure, grown the very general awakening of the people upon this continent to the necessity of a mitigation of the evils resulting from the filthy manner in which we are living, I have no time, nor, is it to be supposed, have your readers patience, to throw away upon any merely personal altercation, between any parties; much less where one of the parties is anonymous.

"Carbonic Acid" says that by my "acuteness" I have discovered who he is. This is the whole secret of the very amiable temper displayed in his last production. Now, I beg he will not flatter himself with the idea that I ever cared one straw who he was. It is to your readers that I addressed my arguments, not to him. He is quite mistaken if he supposes that we have any right to occupy the columns of any paper with matter which does not concern its readers—and them only.

In another thing I wish to set him right. A correspondent, writing over his real name, has a right to complain of personalities—an anonymous writer has no such privilege. He voluntarily assumes a fictitious character—he must take all the responsibilities attached to it. Not only has "Carbonic Acid" thus sheltered himself, but he has gone the length of writing in the first person; and this is the character who complains of personalities! Suppose I were to tell my querulous friend that he was a murderer? He might call this outrageous; yet it is the truth. You scarcely take up a newspaper in which you do not find deaths by "Carbonic acid gas" recorded. I put the thing in this light in order to show my thin skinned opponent the utter absurdity of *his* complaining of "personalities."

Again; he is paying *you* a rather left-handed

compliment by his assertion that my "acuteness" has wormed the secret out of you; for of course it must have come out in that way, if any—I say nothing of the exalted opinion he must entertain of me as a gentleman, who would descend to so mean an action as to attempt it.

Now, Sir, in order to exonerate you from so foul a charge as the betrayal of your correspondents, I beg to assure "Carbonic Acid" that I never inquired, either from you or any other person, who he was—no one has ever told me—that I am just as ignorant of his name and place of residence as I am of those of the Khan of Tartary; and I now further assure my opponent that he need have no fears that I shall ever take the trouble to ascertain either.

As that "strong narcotic poison," carbonic acid gas, is daily murdering its scores and hundreds, and against whose ravages I am endeavouring to arm its victims, I should now go on and show your readers the *modus operandi* by which this arch-enemy of the human family can be bound in chains, and confined to his legitimate sphere, as a constituent in the great economical arrangements of nature—but for two reasons: one is, that I know your readers are impatient of long articles; and the other is, that, if I should do so before your correspondent had time properly to digest and comprehend the ordinary rules and usages incident to public discussions of this kind, he might think that I meant him!

I shall, however, at some future time, when my sensitive friend shall have cooled down, and clearly discerned that while writers *may* be "personal" to *each other*, it is impossible that any body can be *personal to nobody*, take advantage of your kind permission to pursue this important subject.

Your obedient Servant,

H. RUTTAN.

Cobourg, March, 1852.

THE ALCHEMISTS NOT ALL IN THE WRONG.—

In our day, men are only too much disposed to regard the views of the disciples and followers of the Arabian school, and of the late alchemists, on the subject of transmutation of metals, as a mere hallucination of the human mind, and, strangely enough, to lament it. But the idea of the variable and changeable corresponds to universal experience, and always precedes that of the unchangeable. The notion of bodies, chemically simple, was first firmly established in the science by the introduction of the Daltonian doctrine, which admits the existence of solid particles, not further divisible, or atoms. But the ideas connected with this view are so little in accordance with our experience of nature, that no chemist of the present day holds the metals, absolutely, for simple undecomposable bodies, for true elements. Only a few years since, Berzelius was firmly convinced of the compound nature of nitrogen, chlorine, bromine, and iodine; and we allow our so-called simple substances to pass for such, not because we know that they are in reality undecomposable, but because they are as yet undecomposed, that is, because we cannot

yet demonstrate their decomposability so as to satisfy the requirements of science. But we all hold it possible that this may be done to-morrow. In the year 1807, the alkalies, alkaline earths, and earths proper were regarded as simple bodies, till Davy demonstrated that they were compounds of metals with oxygen.—*Liebig's Letters on Chemistry.*

IMPORTANT DISCOVERY.—The *Glasgow Herald* says, that at the meeting of the Philosophical Society of Glasgow, Dr. Penny communicated the important discovery, made by himself, of the presence of a considerable quantity of potash salts in the soot from blast iron furnaces. The soot experimented upon was obtained from the Coltness Iron Works, where it collects in the flues that lead the heated gases and other products of combustion, from the top of the furnaces to the air-beaters and steam-boilers. Dr. Penny, gave the particulars of a careful analysis of the soot, and exhibited specimens of the potash salt, which had been extracted in large quantities by Dr. Quinlan, of Hurler. The salts has been pronounced by competent judges to be a good marketable article, consisting chiefly of carbonate and sulphate of potash, with a small admixture of soda salts. According to the results of experiments described by Dr. Penny, it appears that the soot will yield about fifty per cent of this marketable salt containing forty-three per cent of pure potash. It has been found that the amount of potash in soot procured in other iron works is subjected to variation, arising, no doubt, from the use of different coals in the blast-furnaces. From the well-known value of potash salt, there is every reason to expect that this discovery will prove of considerable importance to those who are interested in these commercial products, and also to iron-masters, who will now be enabled to turn to account a substance which has not hitherto been applied to any practical use.

PROPER LENGTH OF LIGHTNING CONDUCTORS.—The rule prescribed by the French Academy is that a lightning rod will protect a circle whose radius is twice the height of the rod; but Prof. Loomis cited to the American Association at New Haven an instance which he says "demonstrates to my mind that it is unsafe to rely upon a rod to protect a circle of a radius larger than one and a half times the height of the rod, at least upon the west side, whence most of our thunder showers come." These observations drew out various remarks. Prof. Henry stated that he had found in trees struck by lightning that there would be no traces of electricity on the upper branches, but it appeared to strike at the main trunk. He had observed that when the color of the electric discharge is red, it indicates that the electricity is very high.

The reason why candles with platted or twisted wicks do not require snuffing is this:—the burning wick by the force of the torsion of the fibre which composes it, presents itself to the air, and, finding a due supply of oxygen, the carbon burns away. The little beads of vitreous matter, which are seen to accumulate at the end of the wick, are so many beads of glass. Formerly the dropping of ashes into the tallow or stearine of the candle was productive of much inconvenience, when it was suggested that the wicks previously to being covered with their greasy coating, should be steeped in a solution of borax. The plan was found to succeed perfectly; the ashes fusing with borax, formed a glass, which no longer soiled the searine by dropping upon it.

LECTURE ON THE STRUCTURE OF THE EARTH.

BEFORE THE SMITHSONIAN INSTITUTE, BY PROFESSOR SILLIMAN.

We take the following interesting lecture upon the Structure of the Earth from the *New York Herald*. The lecturer said, It was his purpose this evening to pass on to Sicily, and to call the attention of his auditory more particularly to the contemplation of Etna. He then gave a brief account of his voyage to Sicily, and of the islands in the bay of Naples. The morning after leaving Naples, he said, they were up with the Eolian islands, and close to the volcano of Stromboli. These islands are ten in number, and lie between Sicily and continental Italy. Stromboli, it is said, has never ceased its volcanic action a single day—its fires are in unremitting activity, the eruptions taking place at regular intervals, varying from three to eight minutes; but as the vessel passed it in the day time, the fire was not visible, which would have been apparent at night, and they merely witnessed the emission of smoke and steam, at an elevation of fifteen or sixteen hundred feet. They passed on, and discovered Sicily, with the horn of Etna towering above the adjacent mountains, the cone of which is capped with lava—then comes the region of ice—then the woody region, and then that of a highly fertile character. They passed through the strait, about two miles in length, and completely landlocked, in which is situated Sylla and Charybdis, without seeing anything of the famous whirlpool, so remarkable in classic story, although it was stated that at a particular turn of tide danger might be apprehended. The party landed at Massoiri, and distinctly traced the ravages of the earthquake of 1783, in which poor Calabria was destroyed, and from fifty to eighty thousand persons perished. They then visited Saourminia, and thence proceeded to Cantania, that they might have a better view of Mount Etna. At Hartford, Connecticut, the Professor said, there is in the possession of Mr. Cole, a sketch of the mountain, taken from this spot. Lava is so abundant here, that all the houses and other structures are built of this material, and which must have been discharged at a very early date. The first object that attracted attention was an immense field of lava, that overflowed in 1669, which is three miles long and three broad. It flowed on to the walls of Catania, which had been constructed to the height of sixty feet in anticipation of such an occurrence. When it had arrived near the walls it seemed to pause, and then mounted up, and without touching them, fell over and overflowed the city, and thence flowed to the sea, where it formed a cove, and created a harbour where none existed before. The arrest of the progress of the lava opposite the walls, the Professor attributed to the gasses which were emitted in advance, and thus obstructed the onward movement. The lava in this place, he said, was not decomposed, although it frequently decomposes, and becomes a fertile soil. The party now commenced the ascent of Mount Etna. From Catania to its summit the distance is thirty miles; and the latter is upwards of eleven thousand feet above the level of the sea. Its circumference at its base is one hundred and eighty miles, and on its sides are seventy-seven towns and villages, containing 115,000 inhabitants. The mountain, as has before been observed, is divided into three regions—the fertile, the woody and the barren. The cultivated country abounds with all that is required in civilized life, and extends through an ascent of from twelve to eighteen miles. The woody temperate region, extends in a direct line eight or ten miles, and forms a zone of bright green

all round the mountain, exhibiting a pleasing contrast to the snow and ice above, and parts are considered as the most delightful spots upon earth. Around the main cone, are numerous parasitical or subordinate cones. From these different substances are thrown out sometimes gases, sometimes water, sometimes ashes and sometimes small stones. The Professor stated that he had mentioned, on a former evening, that the diameter of the cup of the crater of Mauna Loa is seven miles in diameter, with a depth of one thousand feet; but here is a crater with a diameter of twenty miles, and a cup of upwards of three thousand feet deep. Etna, he continued, had been eruptive, and its eruptions were recorded from the earliest periods of history; but during the present century they have not taken place oftner than once in four years; the noise that is made, which resembles the firing of artillery, being heard at regular intervals of three minutes. And although during one of the eruptions upwards of fifty thousand people were destroyed, yet the inhabitants dwell on the sides and at the base of the mountain, entirely unapprehensive of danger. The Professor said he might multiply instances of volcanic phenomena; but after what had been described, it would only be a waste of time. He gave a minute account of the ascent and descent of Mount Etna on the backs of faithful mules and donkeys, who are left to select their own path, wading through ashes, the person who is mounted, having to hold only the mane in the steep ascent, but who, in descending, experiences more difficulty and danger. The scene, he said, on arriving at the summit, is magnificent beyond conception; and its beauty was enhanced by the subordinate, or as he termed them, parasitical cones, of which, it is said, there are three hundred; at one time he counted fifty. After all that had been stated, Professor Silliman remarked, his audience could need no other proof of the existence of fires in the interior of the globe, and which may break out at any time. Connect the circumstance of the existence of these volcanoes with the heat that is found to exist beneath the surface of the earth, and there could remain no doubt that internal fires are constantly raging beneath. There cannot be a greater fallacy than the popular idea which prevails, that cold water may be obtained by digging deep, for, at a depth of two miles from the surface, such is the heat of the globe at that point, that water will boil. Still, he said, this internal heat has nothing to do with the temperature of the atmosphere on the surface of the earth. The Professor here stated that, in his introductory lecture, he gave some general definitions of the trap and basaltic formation. Of the former of these were the Palisades in New Jersey, on the North river; the Giant's Causeway in Ireland, and a mountain of trap formation near the Columbia river in Oregon—drawings of which were exhibited. The term *trap* he explained, was derived from the Swedish word *trappa*—a stair, which these strata very much resemble, between each of which, on that near the Columbia river, is a layer of pebbles and debris—the cause of which he did not very satisfactorily account for. He considered it, however, as a submarine mountain—of which there are doubtless many under the ocean—in full volcanic activity; and if they do not protrude above its surface, it is because of the superincumbent weight of water. The Professor here diverged to touch upon Siberia, where there is only three feet of soil over a bed of ice, through which a well has been sunk ninety feet; and it was expected that water would be reached at the temperature of 32 degrees. On this thin soil, however, rye will grow, and even trees are to be found. After alluding to the circumstances of igneous rocks not being always volcanic, the imperceptible transition from compact lava to basalt and trap in their varieties, and various rocks used in architecture and the arts, he concluded by illustra-

ting the theory of internal heat by some experimental illustrations. Having satisfactorily proved the existence of internal fires, he said the question naturally presented itself—whence is this heat derived? Werner, owing to his limited field for observation and study, referred the changes on the earth's surface, for the most part, to water, and attributed the combustion which produces volcanic action, to the burning of coal fields. But all the coal fields known to be in the world, the Professor said, would not supply Mount Etna. Of the sources of this internal heat, however, modern science has informed us. About sixty years since, Galvani made the discovery, of which, doubtless, many of those present had heard. While dissecting a frog—which animal is much used for food on the continent—some one touched it with a metallic substance when it became immediately convulsed, and this led to all the subsequent discoveries in galvanism, which was at first thought to be peculiar to animal life. But in 1800, the construction of the voltaic pile—which the Professor described—showed that such was not the fact, and that it was not restricted to animal life. By taking certain materials from the earth itself, and applying galvanic action, an intense heat is produced. Here then is the secret of central fires. The fact being ascertained that this internal heat exists, it is equally evident, owing to the progress of scientific discovery, in what manner that heat may be generated. The earths themselves were regarded as simple bodies until the brilliant researches of Sir Humphrey Davy proved them to be compounds; and who, by means of the voltaic apparatus, made potash to undergo fusion, and from it extracted small metallic globules called potassium. He was equally successful in discovering the metallic base of soda, which forms one-third of common salt, and from which also he extracted sodium.—It is evident, therefore, when we consider the power of galvanism, not only to decompose compound substances, but to generate intense heat, that the earth contains within her bosom agencies which are competent to produce the volcanic phenomena that had been the subject of the three last lectures, and to perpetuate these central fires, of which they are the undoubted evidence.

FORMULA for an ink that resists the action of acids, alkalies, water, or any of those substances usually used in defacing writing:—Shell lac, 2oz.; borax, 1oz.; distilled or rain water, 18oz. Boil the whole in a closely covered tin vessel, stirring it occasionally with a glass rod until the mixture has become homogeneous: filter when cold: and mix the fluid solution with an ounce of mucilage of gum Arabic prepared by dissolving 1oz. of gum in 2oz. of water, and add pulverized indigo and lampblack *ad libitum*. Boil the whole again in a covered vessel, and stir the fluid well to effect the complete solution and admixture of the gum Arabic. Stir it occasionally while it is cooling, and after it has remained undisturbed for two or three hours, that the excess of indigo and lampblack may subside, bottle it for use. The above ink for documentary purposes is invaluable, being, under all ordinary circumstances indestructible. It is also particularly well adapted for the use of the laboratory. Five drops of creosote added to a pint of ordinary ink will effectually prevent its becoming mouldy.

NEW MODE OF PLANTING APPLE TREES.—A horticulturist in Bohemia has a beautiful plantation of the best apple trees, which have neither sprung from seeds nor grafting. The plan is, to take shoots from the choicest sorts, insert them in a potato, and plunge both in the ground, having put an inch or two of the shoot while it pushes out roots, and the shoot gradually springs up, and becomes a beautiful tree, bearing the best fruit, without requiring to be grafted.

MISCELLANEOUS.

We take the following humorous lines from a recent number of the *American Magazine*, published in England. They cannot fail to be read with interest in Canada, where happily the system of communication by means of Railroads has been auspiciously commenced.

RHYME OF THE RAIL.

Singing through the forests,
Rattling over ridges,
Shooting under arches,
Rumbling over bridges,
Whizzing through the mountains,
Buzzing o'er the vale,
Bless me! this is pleasant,
Riding on the Rail!
Men of different "stations"
In the eye of Fame.
Here are very quickly
Coming to the same.
High and lowly people,
Birds of every feather,
On a common level
Travelling together!
Gentlemen in shorts,
Looming very tall;
Gentlemen at large,
Talking very small;
Gentlemen in tights,
With a loose-ish mien;
Gentlemen in grey,
Looking rather green.
Asking for the news;
Gentlemen in black,
In a fit of blues;
Gentlemen in claret,
Sober as a vicar;
Gentlemen in Tweed,
Dreadfully in liquor!
Stranger on the right,
Looking very sunny,
Obviously reading
Something rather funny;
Now the smiles are thicker,
Wonder what they mean?
Faith he's got the KNICKER-
BOOKER Magazine!
Stranger on the left,
Closing up his peepers,
Now he snores amain,
Like the Seven Sleepers;
At his feet a volume
Gives the explanation,
How the man grew stupid
From "Association!"
Ancient maiden lady
Anxiously remarks,
That there must be peril
'Mong so many sparks;
Roguish-looking fellow,
Turning to the stranger,
Says it's his opinion
She is out of danger!
Woman with her baby,
Sitting *vis-a-vis*;
Baby keeps a squalling,
Woman looks at me,
Asks about the distance,
Says it's tiresome talking,
Noises of the cars
Are so very shocking!

Market woman careful
 Of the precious casket,
 Knowing eggs are eggs,
 Tightly holds her basket;
 Feeling that a smash,
 If it came, would surely,
 Send her eggs to pot
 Rather prematurely!
 Singing through the forests,
 Rattling over ridges,
 Shooting under arches,
 Rumbling over bridges,
 Whizzing through the mountains,
 Buzzing o'er the vale;
 Bless me! this is pleasant,
 Riding on the Rail!

DOMESTIC MANIPULATION.

ON THE OPERATIONS AFFECTING WATER.

THE subject of the Water supply to the Metropolis and other large towns is one of the highest importance to the well-being of the community at large, in whatever point of view it may be regarded—whether as affecting the comfort, the health, or the pocket of the consumer, its influence can scarcely be overrated. To enter, however, into this matter, affecting, as it does, so many varied and conflicting interests, would be to pass beyond the limits set to this series of papers: what remains for us to do is to avail ourselves of the vast amount of scientific knowledge which has been recently brought to bear upon the question, and to cull from it such portions as bear directly upon *Domestic manipulation*.

The quality of water for domestic purposes depends mainly upon its degree of hardness or softness; and this in its turn depends almost entirely upon the quantity of lime dissolved in some form or other in the water. In speaking of the quality of water, the term "degree of hardness" is much used; thus we say that the water of the Thames is of 14 degrees of hardness, that of the Hampstead springs about 10 degrees, &c. &c. In these and most other cases the hardness is owing to a certain amount of chalk, carbonate of lime, dissolved, and the degrees of hardness correspond with the number of grains contained in a gallon of water. The Thames water, of 14 degrees of hardness, has in each gallon 14 grains of chalk, and the Hampstead 10 grains. It is found, upon experiment, that one gallon (weighing 70,000 grains) of *pure* water will not dissolve more than two grains of chalk, and so acquire two degrees of hardness; and that whenever more is contained in water, the excess is always owing to the presence of carbonic acid gas, which enables it to dissolve a much larger quantity. The practical part of our subject depends upon this fact; for if by any means we can get rid of carbonic acid, the dissolving chalk is necessarily precipitated, and the hard water, unfit for culinary and domestic purposes, becomes soft, and well adapted to both these uses. Carbonic acid is in part expelled from water by heating it to the boiling point; a still larger quantity is got rid of after boiling for some few minutes, and nearly every trace disappears at the end of half

an hour; and just in proportion as the carbonic acid gas is expelled, so does the chalk fall, rendering the water in the first instance turbid, and becoming deposited on the interior surface of kettles, and where it forms the well-known rock or *fur*.

It has been found that water of 14 degrees of hardness lost two degrees when merely made to boil; boiling for five minutes reduced the hardness to six degrees; and for a quarter of an hour, to little more than four degrees. The practical application of this knowledge needs scarcely to be pointed out. Whenever a soft water is required, boil for several minutes before using. In making tea, for instance, the economy and general superiority of a soft water is well known. Those, however, who use Thames water just made to boil, employ a water of upwards of 11 degrees of hardness; those who boil for five minutes, diminish the hardness of the water by nearly one-half; and by boiling for a quarter of an hour, it can be lessened to one-third. This circumstance is one of those that prove how great a substratum of truth there is at the bottom of most popular notions. How many a young gentleman, with a smattering of science just enough to inform him that water gets no hotter however long or violently it is boiled, has laughed at his grandmother's antiquated notions, because she requested that the water might be made to boil thoroughly before the tea was made; the old lady could give no very satisfactory explanations of her prejudice, yet it was not the less a correct one.

Before going further in this matter, it may be stated that there are some waters in which the lime is dissolved in the form of gypsum (sulphate of lime); in these, which fortunately are rare, the hardness is of a permanent character, and cannot be lessened by boiling. Tea made under such circumstances may be improved, either by the addition of a very small quantity of carbonate of soda, or the tea should be kept soaking for half an hour, under such circumstances as will retain the heat. This latter is the plan followed in Greenwich Hospital, where they use a well water of 19 degrees of permanent hardness.

In washing, the use of hard water is, as is well known, extremely prejudicial. The explanation is exceedingly simple: every degree of hardness in a gallon of water destroys ten grains of soap; and by following out the calculation, it will be found that 100 gallons of unboiled Thames water wastes exactly two pounds of soap before any approach to a lather can be made. Now what is the remedy for this evil? Simply to boil the water some time before use; one quarter of an hour's boiling will reduce the waste of soap from two pounds to ten ounces; and half an hour's boiling will still further lessen it to six ounces; but no amount of boiling will make Thames water equal to rain water, which is without hardness.

There is one practical matter of great importance to which we wish to draw the attention of all concerned: it is the effect of boiling linen in hard water. If clothes are put into cold water, and then boiled, the precipitation of chalk (which

has been so often alluded to) takes place on the clothes, and whatever colouring matter exists in the water goes down with the chalk, and also becomes attached to the linen, rendering it of that disagreeable and unremovable dirty hue which is so characteristic of certain laundries. If boiling is absolutely requisite for white fabrics, it should be done in water which has been boiled half an hour, allowed to stand, and then poured off from the sediment; otherwise, from the immediate precipitation of the chalk, the dirt is boiled in and thoroughly fixed to the fabric. A moment's consideration will convince any one that a deposit to the *fur* in a tea-kettle cannot be expected to improve the appearance of white linen. Where clear rain water can be obtained, there is no objection to the boiling of clothes in it, as, being absolutely free from lime, no precipitation can take place. The use of soda in softening water employed in washing, is well known; but the remedy is not without its own evil: it weakens the fibre of the cloth, and unless it is much more thoroughly removed by rinsing than is usually the case, it occasions a very permanent yellow tinge when the cloth is heated, as in ironing, or in airing; and the evil effect of it upon various colours is well known.

For the purpose of removing on a large scale the hardness of the water, a very ingenious process has been proposed by Dr. Clark, and is now in active operation in many parts of Lancashire; at one printworks alone it is employed daily to the extent of softening 300,000 gallons of water. Although the account does not in strictness come within our limits, inasmuch as it is scarcely a domestic operation, it is so beautiful in its theory, and so successful in practice, that we may venture to devote a few words to its explanation.

We have already stated that the hardness of water is usually owing to chalk or carbonate of lime, dissolved by excess of carbonic acid gas, existing in the water; and that on the removal of that by boiling, the chalk falls as a sediment, entangling and taking down many of the other impurities. Dr. Clark's plan proceeds on the apparent contradiction, that by adding more lime to water, we shall remove that already dissolved; and this is found perfectly effectual in practice. The principles on which it proceeds are these: Pure lime, recently burned, is soluble to a considerable extent in water; when united to carbonic acid gas, it forms chalk, which is nearly insoluble in pure water, but which is dissolved readily by water containing an excess of carbonic acid. Now if pure lime, in the *proper proportion* is added to such hard water, it unites with the excess of carbonic acid, and forms chalk, which falls, and at the same time throws down that portion of chalk which was previously dissolved; and water so treated becomes, on standing, beautifully clear, soft, and pure. This process, however, is one which can scarcely be conveniently performed on a small scale; it should be done in immense reservoirs, the lime being mixed with the water as it flows in. The process, though not in active operation in London, has been repeatedly tested on 3,000,000 to 4,000,000 gallons at a time at the Chelsea water-works; and it has been found that the Thames water is by it redu-

ced from 14 to 4 degrees of hardness; that it is rendered clear, bright, and much purer, without acquiring any odour or taste; and that the expense may be regarded as being about £1 for so purifying every million gallons.

We take the above from an excellent little London periodical, having an immense circulation, entitled the *Family Friend*, from which we shall occasionally furnish our pages.

A Singular Relic.

Capt. D'Auberville, of the bark chieftain, of Boston, writes to the editor of the *Louisville Varieties* that he put into Gibraltar on the 27th of August last to repair some damages his vessel had sustained, and, while waiting, himself and two of his passengers crossed the straits to Mount Abylus, on the African coast, to shoot, and pick up geological specimens. Before returning the breeze had freshened so much as to render it necessary to put more ballast in the boat, and one of the crew lifted what supposed to be a piece of rock, but from its extreme lightness and singular shape was induced to call the attention of the captain to it, who at first took it for a piece of pumice-stone, but so completely covered with barnacles and other marine animalculæ as to deny that supposition. On further examination he found it to be a cedar keg. On opening it he found a cocoa-nut, enveloped in a kind of gum or resinous substance; this he also opened, and found a parchment covered with Gothic characters, nearly illegible, and which neither he nor any one on board was able to decipher. He, however, found on shore an Armenian book merchant, who was said to be the most learned man in Spain, to whom he took it, who, after learning the circumstances of its discovery, offered 300 dollars for it, which offer Capt. D'Auberville declined. He then, says the letter, read word for word, and translated it into French as he read each sentence; it was a short but concise account of the discovery of Cathay, or further India, addressed to Ferdinand and Isabella, of Castile and Aragon, saying the ships could not possibly survive the tempest another day; that they then were between the Western Isles and Spain; that two like narratives were written and thrown into the sea, in case "Carnaval" should go to the bottom, that some mariner would pick up one or the other of them. The strange document was signed by Christopher Columbus in a bold and dashing hand. It also bore the date of 1493, and consequently had been floating over the Atlantic 258 years.

ACKNOWLEDGMENTS.—Our best thanks are tendered to the editors of the *Mark Lane Express* and the *Irish Farmer's Gazette*, for the receipt of those valuable Journals; and we hope to have soon the same pleasing duty to perform to the *North British Agriculturist*; when we shall be fully able to give our numerous readers such information as is peculiar to each great division of the United Kingdom.

PORTRAIT OF J. G. BOWES, ESQ.—Mr. Hoppner Meyer, the well known artist, of this city, has favoured us with an excellent likeness of our much esteemed Mayor. Both the original painting and engraving fully sustain Mr. Meyer's well-merited fame in this department, and are highly creditable to the state and progress of the Fine Arts in Toronto,

TO BREEDERS OF IMPROVED STOCK.

We have received from Lewis G. Morris, Esq., the following announcement of his next annual sale, which such of our subscribers as are desirous of improving their stock could not do better than attend. Mr. Morris's sound judgment, great industry and enterprise in his particular department, coupled with his high standing for honorable dealing, fairly entitle him to the confidence and support of a discerning public.—EDITOR C. A.

LEWIS G. MORRIS'

Third annual Sale, by Auction, of Improved Breeds of Domestic Animals, will take place at Mount Fordham, Westchester County, (11 miles from the City Hall, New York,) on Wednesday, June 9, 1852.—James M. Miller, Auctioneer.

Application need not be made at private sale, as I decline in all cases, so as to make it an object for persons at a distance to attend. Sale positive to the highest bidder, without reserve.

Numbering about fifty head of horned stock, including a variety of ages and sex, consisting of pure bred short horns, Devons, and Ayrshires; Southdown buck lambs, and a very few ewes; Suffolk and Essex swine. Catalogues, with full pedigrees, &c., will be ready for delivery on the first of May—to be obtained from the subscriber, or at the offices of any of the principal Agricultural Journals or stores in the Union. This sale will offer the best opportunity to obtain very fine animals I ever have given, as I shall reduce my herd lower than ever before, contemplating a trip to Europe, to be absent a year, and shall not have another sale until 1854.

It will be seen by reference to the proceedings of our State Agricultural Society that I was the most successful exhibitor of domestic animals, at the late State Fair.

I will also offer a new feature to American Breeders—one which works well in Europe; that is, letting the services of male animals; and will solicit propositions from such as see fit to try it. Conditions—The animal hired, to be at the risk of the owner, unless by some positive neglect or carelessness of the hirer; the expense of transportation to and from, to be borne jointly; the term of letting, to be one year or less, as parties agree; price to be adjusted by parties—to be paid in advance, when the bull is taken away; circumstances would vary the price; animal to be kept in accordance with instructions of owner, before taking him away.

I offer on the foregoing conditions, three celebrated prize bulis, "Major," a Devon, nine years old; "Lamartine," short horn, four years old; "Lord Eryholme," short horn, three years old. Pedigrees will be given in catalogues.

At the time of my sale, (and I would not part with them before) I shall have secured two or three yearly setts of their progeny; and as I shall send out in August next a new importation of male animals, I shall not want the services of either of these next year. I would not sell them, as I wish to keep control of their propagated qualities hereafter.

I also have one imported buck, the prize winner at Rochester last fall, imported direct from the celebrated Jonas Webb; and also five yearling bucks, winners also, bred by me, from bucks and ewes imported direct from the above celebrated breeder; they will be let on the same conditions as the bulls, excepting that I will keep them until the party hiring wishes them, and they must be returned to me again on or about Christ-

mas day. By this plan, the party hiring gets rid of the risk and trouble of keeping a buck the year round. All communications by mail must be prepaid, and I will prepay the answers.

L. G. MORRIS.

Mount Fordham, March, 1852.

Markets.

AGRICULTURIST OFFICE,
TORONTO, APRIL 1, 1852. }

Our market has been very thinly supplied this week up till to day, owing to the bad weather and very heavy roads. We had, however, from 300 to 400 bushels of wheat in to-day which was disposed of at prices ranging from 3s. 3d. @ 3s. 7d. There was a good supply of common field pease which brought from 1s. 10½d. to 2s. Marrowfat pease are however very scarce, and bring from 5s. to 6s. 3d.

Potatoes are also very scarce, and command 4s. readily.

Fresh butter still holds at 1s.

Eggs have declined to 7d.

There is little Timothy seed coming in, and prices are rather down.

Clover seed has advanced.

The following are the quotations:—

	S.	D.		S.	D.
Flour, mil's. ex. sup. & brl. 196lbs	17	6	@	18	9
Farmers' Flour & brl. 196 lbs....	15	0	@	16	3
Wheat & bushel 60lbs	3	3	@	3	7
Barley & bushel 48lbs	2	3	@	2	5
Rye & bushel	2	3	@	2	6
Oats & bushel 34lbs	1	3	@	1	4
Pease & bushels 60lbs	1	10½	@	2	0
Marrowfat do. do.	5	0	@	6	3
Potatoes & bushel	3	9	@	4	0
Beef & lb	0	3	@	0	4
Beef & 100lbs	20	0	@	25	0
Fresh Butter & lb	0	0	@	1	0
Salt Butter do.	0	9	@	0	10
Firewood & Cord	13	9	@	15	0
Mutton, & lb	0	3	@	0	3½
Hay & Ton	35	0	@	50	0
Pork & 100lbs	22	6	@	26	3
Turkies	2	6	@	4	0
Geese	1	3	@	2	0
Chickens & Pair	1	6	@	2	0
Ducks & Pair	1	6	@	2	0
Timothy Seed & bushel	8	9	@	9	0
Clover Seed & bushel	25	0	@	26	3

The Canadian Agriculturist,

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THE
CANADIAN AGRICULTURIST
AND
Transactions
OF THE
BOARD OF AGRICULTURE OF UPPER CANADA.

VOL. IV.

TORONTO, MAY, 1852.

NO. 5.

AGRICULTURE—ITS ADVANTAGES AS A
PURSUIT.

BY ABSALOM GREELEY, DEMORESTVILLE, COUNTY
OF PRINCE EDWARD.

[To this Essay, written by a young farmer, has been
awarded a Diploma by the Board of Agriculture.]

Agriculture not only gives riches to a nation, but the
only riches she can call her own.—DR. JOHNSON.

Agriculture is coeval with the creation; it is
co-existent with Time. Independently of its
great and indispensable benefits to the human
family, it is the great beautifier and renovator
of the earth. It is the immovable basis of home,
and all endearing associations. Without it man
would be a wandering vagrant, without a "local
habitation or a name." The social compact, as
it now exists, in all its nice discriminations and
distinctions, would never have existed. Com-
merce would be unknown, and manufactures
would be undiscovered. The earth would be
an unbroken forest, and all those bright and hap-
py scenes which the labor of man has created,
would never have been imagined.

Agriculture is the true source of patriotism.
It is what makes country and home valuable.
The owner of the soil will defend his home, for
there are enjoyed the pleasures and the sweets
of life. It is there that life's happiest scenes are
passed, and there the aged man hopes to repose
in peace. Agriculture then, so prolific of re-
sults of the highest consequence to the human
family, must be advantageous as a pursuit.

First,—It is a peaceful and innocent pursuit.
While Commerce is involved in the meshes of a
net-work of speculation, Agriculture is compara-
tively free from all such contaminating influences.
In its pursuit honest labor meets its reward, and
a consciousness of having earned the comforts of
life, adds zest to the enjoyment. We find evi-
dences of this truth on every hand. In every
land the rural population, wherever their indus-
try is not torn from them by the gripe of avarice

and oppression, are peaceful and contented; and
it is alone, amid the mazes, and the crimes, and
the restlessness, and excitements of cities and
capitols, where Revolutions take place and trea-
son is planned. By this I do not mean that the
tillers of the soil take no interest in their con-
dition politically, and that they never take the
field in defence of those rights with which Heav-
en has invested them, and those privileges guar-
anteed by the social compact. But it is only
when mis-rule and oppression rouse them from
their peaceful position, that they are impelled by
a common feeling of patriotism against a com-
mon enemy. Thus Cincinnatus was taken from
his plough to rule the destinies of Rome, and
Washington exchanged the peaceful shades of
Mount Vernon for the battle-field. Fabricius,
the Roman Senator, who was proof against the
gold of the King of Epirus, received his support
from a "little field." Some of the great states-
men and generals of antiquity found a relief from
the cares and anxieties of State in the composi-
tion of works on Agriculture. Virgil, in his
Georgics, makes Agriculture a theme for his in-
spired muse, and Solomon, the wisest man, wrote
treatises on every plant from the "Cedar to the
Hyssop." In short, earth's wisest and bravest
have found a delightful retreat, and a certain
repose amid the peaceful scenes and happy fields
of the farmer.

The merchant who is fortunate enough to re-
alize sufficient means usually builds himself a home
in the country, and amid a rural population, en-
joys for a season each year that repose which
his worn and harrassed mind requires, and which
is not to be obtained at any price in the busy
Mart on the Exchange, or amid the tinsel of
fashionable life. In doing this he seeks those
very advantages which are peculiar to a far-
mer's life,—health and peace of mind,—without
which the greatest riches cannot impart happi-
ness.

The Lawyer may find amusement and employ-
ment for his mind in disentangling the mazes

and labyrinths woven by litigation, and in the excitement of forensic efforts and doubtful success, may feel a thrill of pleasure, or enjoy a gleam of satisfaction. But it cannot be denied that his most eloquent appeals are bought with a price,—that his talents and legal lore are frequently prostituted from necessity to the defence of men to whom he would not speak should he meet them in any other place than the dungeon or the prisoner's dock, and from whose presence he would fly as from a pestilence. Stripping the profession of the law of the empty honors conferred by Statute, and the privileges and immunities incident thereto, and the man would sink beneath the drudgery of form, his mind would sicken at the crimes of every dye that are continually arrayed before him. All the better feelings of his nature would revolt at the prospect of defending from justice the midnight assassin, the incendiary and the seducer, the wretch who would break down every barrier of virtue, and pluck up every bright flower that blooms in the pure and spotless mind of youth and innocence: yes, the man who would desecrate the altar or betray his country, must be defended by those who have consumed the "midnight oil" in patient and untiring study!

Too many of our youth are rushing into the profession of the Law. The peaceful and innocent pursuits of Agriculture never caused virtue to shed a tear, or robbed Justice of her victim. Cunning and artifice are never employed by the Agriculturist in the pursuit of his avocation. He breathes the pure air of Heaven, uncontaminated by the damps of dungeons. The music of the birds,—the verdure of the fields, and the thousand sights and sounds that animate and render vocal the landscape, cheer him on his way, and he sows the seed in hope, and the blessing of Providence gives the increase.

By common consent the profession of Arms is honorable. Ages have given it their sanction. From the earliest dawn of History, Conquerors have risen up from time to time, upon whose track desolation and want; grief and misery have followed. They have gathered what the world calls *laurels* upon the ensanguined field. They have astonished the world by the greatness of their deeds, if we judge them by their violence and injustice. Earth's fairest scenes have been desolated; the brightest prospects of her children blasted by cruel, vindictive *War*; and in the sack of Cities and the desolation of Provinces, the historian records the work, not of men, but of demons. But the "pomp and circumstance," the tinselled ornament and the gorgeous pageantry of an army are peculiarly attractive to unphilosophic eyes. I can imagine the profession of arms honorable in a Leonidas struggling with the proud Persian upon the

threshold of his country; a Kosciusko or a Kossuth! Though defeat was the bitter portion of them all, yet theirs were the honor and the glory.

The Profession of *Agriculture* is unsullied by violence or crime. The tears of the widow, and the lamentation of the orphan appeal not to Heaven against it. Instead of desolating Provinces, it makes the wilderness beautiful—instead of destroying Cities, it gives food to their vast population, and *originates* Commerce by providing a surplus for export. More than all this, the maxims of War are declining, and soon the din of battle and the clash of arms will be heard no more, while Agriculture is beginning to be aided and patronized by all civilized nations.

Agriculture is truly innocent and peaceful; the day is spent in healthful labor, and when the curtain of night o'ershadows the earth, the *country* is silent and at rest. Not so the city—the abodes of prostitution and of crime exhibit evidences that deeds are being committed which will not bear the light of day—the thief is at his work, and the incendiary expects, in the conflagration which he causes, to reap his reward in plundering the goods of his victims!

The life of the farmer, then, is a life of honesty, of innocence, of peace, and consequently one of *happiness*; the great end and aim of all our efforts and all our desires.

Secondly,—It is an independent pursuit. There is no condition of life so desirable as independence, and a pursuit that places a man nearest this grand desideratum is certainly most advantageous. It is, I believe, impossible in this present state, or in that of any other which is revealed to us, to be entirely independent. The poet very truly expresses this sentiment when he says—

"God never made an independent man,
'Twould mar the concord of his general plan."

But there are some avocations that alleviate more of the wants and "ills to which man is heir" than others, and I will endeavor to show that the pursuit of Agriculture stands pre-eminently above all others in this respect.

The labor of the world is directed towards the accomplishment of two objects; providing for the necessities of life, and the accumulation of riches. The first is immediately necessary; the other is laudable only as a provision against old age or misfortune. The agriculturist provides immediately by his labor for the necessities of life; and an interest in the soil, confirmed as it is in this country by the patent of the Government, provides, with ordinary foresight on the part of the owner, against the latter contingency. So that the farmer has within his grasp that,

which in most other pursuits, is only a doubtful calculation.

Taking the accumulation of riches into account, if the farmer does not accumulate as rapidly as an occasional chance speculation in Commerce, it is, nevertheless, *more certain*. Commerce is liable to be overdone, so that bankruptcy is the inevitable consequence. Manufactures may be carried to too great an extent, so that capital invested in them will remain idle or unproductive,—operatives thrown out of employment, and want and suffering inevitably follow. But while the earth is peopled, food must be provided. This is exclusively the province of the farmer; and while man is constituted as he now is, the Agriculturist will have an unfailing market for all he can produce. Nor can manufactures be carried on without the raw material, which for most articles must be provided by the farmer. 'Tis true an abundant harvest may reduce, to some extent the prices of produce, but instead of this being regarded as a calamity, it should be looked upon with gratitude, as a blessing of Providence. The Agriculturist, then, is certain to obtain a competency.

Another consideration of vast importance is that a competency, when once obtained, is more secure. In Cities, men who invest their money in houses, frequently suffer heavy losses by fires, and certain loss by inevitable decay. Commerce is at the mercy of the winds and waves, and an unfavorable turn in the markets, often strips men engaged in mercantile pursuits, of all they possess. Risks of this kind are not incurred, to any great extent by the Agriculturist. Farmers can get their property insured against fire at a rate far below what is paid in cities; and if a farmer is utterly ruined, it is usually done by "*endorsing for a friend*," or frequenting the bar-room. In a word, the farmer is the only man in the world who can combine, within himself, those pre-requisites to happiness which "lie in three words," and which are so often quoted, namely: "*Health, Peace, and Competence*."

Third,—Agriculture is a pursuit favorable to the improvement of the mind. The alleged ignorance of farmers is proverbial. I will meet this objection at the beginning. The Agriculturist may be ignorant of the intricacies of Statute law, or the conflicted creeds and hair-splitting disputes of Theologians. The technicalities of science, and the almost imperceptible inductions of speculative philosophy, may be to him a sealed book. But he is, nevertheless, well acquainted with the *principles of justice*, and in the Courts of Law we invariably find the farmers of the Counties composing the juries, who are in the end to decide on the facts of causes and the conflicting testimony of witnesses. The volumes of nature and revealed religion are spread out

before him. He worships with a simple and unaffected piety. The growth and formation of plants are among his familiar subjects of observation and study: he is, in fact, a botanist without understanding, it is true, the technicalities of Linnaæus. The nature and the peculiar habits of the various animals that compose his stock are well understood, and all the operations of a well regulated farm, exact in themselves, beautiful in their combined operation, and beneficial in their tendency, require to be matured and directed by a single mind.

The mere book-worm may sneer at the farmer's poverty of language. The Lawyer may sometimes rejoice that his client is ignorant of the technicalities of Law. But let no one suppose that the genuine Agriculturist is the ignorant, imbecile *thing* he is so often represented. He can boast of his *practical* intelligence; an intelligence that empowers labor to create a garden in the wilderness; that founds empires, where only the wild beasts formerly roamed. The pioneers of every land, before whose efforts the forests melt away; beneath whose hands the earth is clothed, as if by magic, with a robe of loveliness, are all farmers. They bring forth from the bosom of the earth, the bread that supports the teeming millions of this world, and by their ceaseless activity and unyielding perseverance create that capital which is the sure foundation of a nation's greatness, and "*the only riches she can call her own*."

I do not wish to be misunderstood; far be it from me to insinuate that Agriculturists do not require their minds to be enlarged by the various branches of science, and particularly those that more immediately relate to farming. I believe that with a proper system of common schools to lay the foundation, there is no occupation so conducive to intellectual and moral improvement as Agriculture. The fields of the farmer constitute a grand Laboratory, in which nature performs her work, and where the intelligent mind can find sources of improving thought, and volumes of the most valuable instruction. And in the calm retirement of his quiet home, the farmer, whose mind is properly trained, can scan the movements of conflicting parties, the turmoil and excitement and confusion of politics, and in the hour of danger, as well as of peace, becomes the sheet anchor of his country.

Agriculture was devised by the Creator as the means of support for his creatures, and in its time-honored pursuit, the farmer, in the beautiful language of one of England's greatest bards, will find—

"Tongues in trees,
Books in the running brooks,
Sermons in stones,
And good in every thing."

MEETING OF THE BOARD OF AGRICULTURE.

The Board met, pursuant to adjournment, on the 20th, 21st, and 22nd of April, in one of the Committee-Rooms of the Parliament Buildings in this City. Members present:—E. W. Thomson, Esq., Chairman; Hon. Adam Fergusson; David Christie, Esq., M. P. P.; R. L. Denison, Esq., John Harland, Esq.; and the Secretary. T. C. Street, Esq., M. P. P., President of the Agricultural Association of Upper Canada, favored the Board with his attendance, to assist in revising the Premium List, and making arrangements for the next Provincial Exhibition to be held in Toronto, in September next. Wm. McDougall, Esq., was also present, by request, at one of the sittings that the Board might have the advantage of his views and experience with reference to the working of the new Agricultural Statute, and certain objections that have been raised thereto.

The following is a short abstract of the proceedings.

The revision of the Premium List occupied a large portion of the time; the Secretary submitted a number of communications, containing suggestions and recommendations on the subject. Nothing was expunged from former lists, worth mentioning here, but several additions were made, and the aggregate amount of premiums, for 1852, will greatly exceed any previous year. As the list will be published in the next number of the *Agriculturist*, the mention of particulars here is unnecessary.

The Secretary had received but few returns of Judges for the next Exhibition from County Societies, a circumstance the Board much regretted, as involving considerations of the greatest importance to the efficient and satisfactory working of the Show. It was agreed, however, that the Secretary, with the other members of the Board should use their best exertions in timely preparing as full a list of competent judges as may be practicable: and in order that the judges may assemble in good time, and become acquainted with each other, previous to entering on their duties, it was resolved that an early Breakfast be prepared for them on the grounds, on the first day of the Show. It was also determined that the previous regulation, imposing an entry charge of 7½d on each article above three, should be abolished; such regulation having been found to cause much trouble and inconvenience in practice, without making any addition worth considering to the funds. It having been found from an experience of four years that a ploughing match in connection with the Annual Exhibition of the Provincial Association has proved comparatively a failure; the competitors being in most

cases from the immediate vicinity in which the Show is held, and the attention of both officers and visitors is so fully engrossed with other matters, it was deemed expedient to discontinue the usual ploughing match. The Board is of opinion, however, that the encouragement of County ploughing matches, and devoting an entire day thereto, is an object worthy of consideration and support.

The Secretary submitted communications from the Agricultural Societies of Perth and Northumberland, objecting to several provisions of the present Agricultural Statute; one or two other Societies, it had been incidentally noticed in the public prints, had also raised objections, but they had not communicated them to the Board. The Secretary also mentioned some suggestions which he had received in the course of correspondence with individuals relating to this subject, which were entitled to consideration. After devoting much time and thought to the matter, it was deemed expedient to defer the further consideration of the question to another meeting; in the mean time the Minister of Agriculture should be consulted, and the Board informed of the views and intended plans of this new department of the Government. It was also suggested that the Statute under which this Board is organized should be so far amended as to include the Minister of Agriculture and the President of the Provincial Association as *ex-officio* members thereof. The Board was of opinion that the 20th clause of the Act, interpreting the word County as including United Counties, should be repealed, so as to make each County separate and independent, and that the present amount of £17 10s, to be raised by a Township Society, before it can be legally organized, should be reduced to £10. These, and, perhaps, in few minor alterations, appeared desirable should be made in the next Session of Parliament, but it was thought at present premature to interfere with the principle and other provisions of the Act, till it had been tested by a longer experience. The Board will be always thankful to receive communications on the subject, since there can be but one object to secure, viz: the obtaining of the best legislative enactment, *upon the whole*, for promoting the Agricultural improvement of the country.

Several reports from County and Township Societies were received, with statements of income and expenditure, list of officers, &c., abstracts of which were ordered to be made and published in the Transactions. Only two reports, however, had been received that came within the prescribed conditions, accompanying the Prizes offered last year for Agricultural reports of Counties. The first prize of £20 was awarded to the Report of the County of Wellington; the second prize of £15 was awarded to the Report of the County of Hastings. These reports were ordered to be published in the Transactions, prefixed to the *Agriculturist*. It was also resolved that Reports in this class should be received up to the 1st of May; such reports, however, can compete only for the third and fourth prizes. For the future competition for County Reports is to be thrown open to the public generally; the conditions will

be stated in full in the forthcoming premium list.

The Chairman, Treasurer, and Secretary were authorized to complete the arrangements with the University Authorities respecting the grounds for the Experimental Farm, and commence the necessary preparations without delay. It was thought that the Winter season would be the most suitable to young men in the country, for attending the lectures of the Professor of Agriculture, in the University, and that publicity should be given to the arrangement as soon as completed.

The Board have received permission from Government to occupy a room in the Parliament Buildings for an office.

Professor Croft, of the University of Toronto, was requested to act as consulting Chemist to the Board.

Donations of Books for the Library had been received from F. Widder, Esq., Hon. Adam Fergusson, and Wm. McDougall, Esq., for which a vote of thanks to these gentlemen was passed.

J. B. Marks, Esq., favored the Board with a long communication containing several useful suggestions for which a vote of thanks was passed. Mr. Marks was prevented attending in consequence of navigation not being thoroughly open, and a letter from Mr. Sheriff Ruttan was also read, who was detained on Assize business at home. The Secretary received a communication from Mr. Sheriff Treadwell too late to bring before the Board.

The Treasurer was instructed to procure the accounts of the Committee at Brockville relative to the expenditure in erecting fences, buildings, &c., in connection with the last Exhibition, and the payment of the balance yet due, and that the Chairman, Secretary, and Captain Shaw be a committee to audit the Treasurer's accounts, before the next meeting of the Board. It was left to the Chairman to determine the time of the next meeting of Board, the proceedings of which then terminated.

GEO. BUCKLAND,
Secretary.

Toronto, April 27, 1852.

A DISCOVERY.—A chemist in New Orleans has been making experiments with Indian Hemp, (*Canabris Indica*) in order to test its availability for medicinal purposes. He found that six grains, a large dose, produced great weight about the head, followed by irresistible bursts of laughter, during which, however, he was perfectly conscious of all that he was doing, or felt or thought. He says:—"I was astonished by the crowd of brilliant and novel ideas and fancies that rushed through my brain, returning over and over again. Imagination and perception were developed to their greatest extent. All the principal incidents of my life passed before me like a flash. This condition of mind lasted about two hours. Dreams and reveries of the most pleasing nature followed this extraordinary tension of the intellectual faculties. Then came a deep, calm sleep, which terminated this singular fit of mental hallucination." He thinks it will become extensively used in medicine.

The Agriculturist.

TORONTO, MAY, 1852.

FLAX; ITS CULTIVATION AND MANAGEMENT. NO. II.

There can be but little doubt that the cultivation of Flax, on a *moderate scale*, might be made profitable in Canada; provided a certain market could be depended on for the raw material. A slovenly cultivation, however, could never pay; and it is most desirable that whatever attempts may be made in this, to us, new department of husbandry, should be as thorough and perfect as circumstances will permit. In the introduction of any new crop into our rotation, except upon a mere limited, experimental scale, more than ordinary caution should be observed. A speculative demand may exist for a particular article for a short time, and high prices may consequently be obtained; but a reverse is sure to follow in the ordinary course of things, involving often the ruin of thousands. A practical Farmer, in a recent number of the *Mark Lane Express*, has the following sensible remarks:

"It is very speculative to relinquish a common corn crop which is almost certain in its production, for one of which we know comparatively nothing, be its prospective advantage never so great. Times of great and long depression are sure to call forth speculations of this character: the result has been disastrous to thousands. It pains us to know that the cultivators of chicory, canary seed, and turnipseed and like small seeds, have suffered most severely during this season, and that the cultivators of potatoes and flax have not as a class been remunerated. The price of the dried chicory-root has fallen from £27 10s. to £6 10s. per ton; canary-seed from about £5 10s. to £1 15s. per qr.; and turnip and other seeds, in all their varieties, in equal proportion. This is owing to speculative growth within a very short period. Potatoes and flax are of more general utility, and in consequent demand; but we fear the continued extension of their culture may ultimately prove very unprofitable. We entertain a high opinion of flax culture, and we believe that the efforts now making to bring into full development all its powers will end in its becoming one of the most general and most profitable of our cultivated crops."

The uncertainty of the Flax crop on this continent, arises more from the *slovenly manner* in which it is commonly treated, than from anything unfavourable either in soil or climate; although the extreme dryness of the weather, during the spring and summer months, which more or less characterises the American climate as a whole, must be regarded, to a certain extent, as unfavourable to the successful culture of

this useful plant. In Belgium, however, the climate of which is neither so moist nor equable as that of the British Islands, the production of Flax, as regards both quality and quantity, has long since reached a point wholly unapproached by any other nation;—an advance mainly attributable to the adoption of *a sound and thorough system of manuring and cultivation.*

It has been objected to the growth of Flax that it rapidly exhausts the soil; and hence in many farm leases in England, its cultivation is fenced round by numerous and perplexing restrictions, and is sometimes prohibited altogether. Of its exhausting tendency when frequently grown, without regard to rotation, and where the seed and fibre are wholly taken away, and nothing possessing the same ingredients returned to the soil, there remains not the shadow of a doubt. But there is nothing peculiar to Flax in this respect; all other seed producing plants would, under the same treatment and conditions, bring about precisely the same result. It is well understood by our best cultivators, and the most eminent chemists who have given their attention to the subject, that the flax plant has no peculiar power of exhausting the land; but on the contrary, when adopted into a judicious rotation, and properly manured and cultivated, it becomes an *ameliorating* crop. If every farmer, of any extent, in Canada, had an acre or two of this crop under the mode of management herein implied, the finer portions of the fibre only sold, and the remainder used for litter to make manure, and the seed fed to cattle;—by these simple means the productive powers of the soil of the whole Province would be materially increased, as would also the money value of all descriptions of live stock, whether for breeding or fattening purposes.

The following extract from a statement of an Ohio farmer, will afford our readers an idea of the mode of raising flax, in that state of the union:

"If on sod ground, plow *very* deep in the spring; as early as frost will allow; harrow well till it is mellow. then sow about three pecks of seed per acre, and drag it lightly. We think three pecks little enough on sod ground, but less might do on corn stubble or fallow. It is less labor, covers the ground from the scorching rays of the sun, and leaves the soil in a better preparation for wheat than the old plan of summer-fallowing. We get on an average 10 bu. seed and 400 lbs. of dressed flax per acre. The seed sells here for \$1.25 per bu., and the flax for 7 cts. per lb. So that a crop yields us \$40.50 per acre. Some seasons, if the soil is well prepared, we get 16 bu. per acre, and 600 to 700 lbs. of dressed flax. I do not think it impoverishes the land so much as a barley or an oat crop."

We copy the following remarks, on the cultivation of Flax, from the writer in the *Mark Lane Express*, before mentioned:—

We would first remind our readers that nearly all

the raw material used in our linen manufacture is the produce of foreign countries, as is also the linseed crushed for its oil and oilcake. The Government returns show that about £8,000,000 is annually paid to foreigners for flax, linseed, and oilcake, almost the whole of which is brought into home consumption; the exportation of linen and linen yarn being about two-thirds of the quantity produced, all the oilcake and oil being wholly consumed at home. Now, as we have a climate congenial to the growth of the flax crop, and a soil well adapted to its culture, we think the employment of a large portion of our agricultural population in the cultivation and preparation of this crop for the manufacturer and the oil crusher, can be regarded in no other light than as a national blessing. The amount of expense incurred in manual labour alone, upon an acre of flax of average growth, taking it through all its stages, *i. e.* sowing, weeding, pulling, watering, and grassing, lifting, and carting, and scutching will not fall far short of £6; the rent, rates, and seed to about £4 more. This appears a heavy outlay, but if such a large cost in labour can be abundantly repaid in the crop, no one will demur to it; besides, we have greater facilities for its culture than formerly, both in the diminution in the price of labour and the scientific appliances brought to bear upon it. In the latter, we have full confidence; we augur much from Mr. Dickson's machine, and other inventions and discoveries both in the preparation and manufacture of this valuable crop.

The produce of the flax crop in money value, if we are to credit the accounts given us by many respectable cultivators (and we see no reason to doubt their correctness), is very great. Many instances are given, showing a nett profit varying from £12 to £30 per acre. We think the average yield of an acre of flax will be about 7 cwt., and the produce of seed about 20 bushels. This we think a rather low average. The price of good useful flax per ton is about 60s., and the seed about 6s. per bushel. At these prices the flax will be worth £21 per acre, and the seed £6; total, £27; thus leaving a nett profit of £17 per acre, taking the costs at £10 per acre, as stated. Now, it must be borne in mind that to produce this profit the cultivator must be provided with every convenience; otherwise he must sell his flax straw to the "retter," or waterer and scutcher; and herein lies the difficulty. We trust that in every district parties will be found to undertake these departments upon reasonable and equitable terms, and thus encourage the culture of this most valuable and much-required crop. Scutching mills are required in every district suited to flax culture, and will form a profitable business.

GRAMMAR SCHOOL L'ORIGINAL.—We observe with much pleasure, that efforts are being made for establishing, a Grammar School for the United Counties of Prescott and Russell, for which Charles P. Treadwell, Esq., has offered a site, with a handsome subscription of £105 towards the erection. It is in contemplation to have a small model or illustrative farm attached, so as to include the science and practice of Agriculture, in the general routine of study. We trust the effort will be successful.

DEATH OF THE REV. J. R. SMYTHIES.—Our recent English exchanges contain the melancholy intelligence of the deceased of this distinguished breeder of Hereford Cattle. Mr. Smythies expired on the 24th of March, in the 74th year of his age, after having spent an active life both as a clergyman and an advancing agriculturalist.

PROGRESS OF WESTERN CANADA.

We insert the following official document for the information of several parties on both sides of the Atlantic, who have sent us inquiries respecting the soil, climate, and social condition of the Western portion of the Canadian peninsula. It clearly indicates a healthy and most satisfactory rate of progress. When the great Western Railway is completed, and branches in connexion therewith made in different directions, the immense resources of this extensive, healthy, and most fertile tract of country, will be fully called forth, and it will then stand second to none on this continent as a field for enterprising and profitable industry. Notwithstanding the present rapid settlement of this Western portion of Canada, there will remain ample room for all comers for many years; and all persons coming from the Old Country with means, whether great or small, would do well to give this section of country a personal investigation before finally determining their locale:—

REPORT

By the Clerk of the Peace of the United Counties of Huron, Perth and Bruce, upon the state of Crime within the said United Counties, during the year 1850.

To the Honourable Board of Registration and Statistics, Toronto:

There are few circumstances in the history of an infantile settlement, more delightful to the statist or philanthropist, than the contemplation of the diminution of crime, and advancement of the prosperity of a people, or that tell more forcibly in favour of the good government of mankind, than when they are accompanied by active industry, full employment, and the real prosperity of a large, miscellaneous, and contented community.

Moreover, the facts which I am about to adduce in support of the above sentiments are big with inquiry and contemplation, both to the philosopher and the politician. Indeed it cannot be disputed in the present day, that the melioration of the condition of the people in all civilized countries under free and liberal governments, can only prosper and go hand in hand with just, equitable and humane legislation.

To the individual intelligence of the magistracy—now ramified over the length and breadth of the two senior counties—and by their benevolent and upright discharge of the administration of justice in accordance with the law of the land—to the absence also of political and sectarian animosity, but principally to the industry and morality of the people, are we mainly indebted for the remarkable diminution of crime which adorns the period in these united counties since the census in 1848.

But as facts are better than arguments, I shall

at once go to the proof, in as far as the documents in my possession, and the returns of convictions by the Magistracy, and the records of the Courts of Quarter Sessions are concerned; leaving the trifling matters connected with the Courts of Assize—over whose statistics I have no control—to speak for themselves in another place.

The population of the Huron District in 1841, was - - - - 5,600

In 1847, six years thereafter, 16,641...Inc. 11,043

In 1848, one year thereafter, 20,450...Inc. 3,807

In 1850, two years thereafter, 26,933...Inc. 6,483

The last quotation is nearly independent of the new and fast settling county of Bruce, which, owing to the infancy of its municipal institutions, only returned 360 persons for the townships of Huron and Kincardine, but which may now confidently be assumed to contain from 3000 to 4000 inhabitants—say 3,067—or a total population of the three united counties of - - - 30,000

Being an increase for 1849 and 1850 of 9,550

Or a total increase, since 1841, of - 24,400

An increase almost incredible, as, upon reference to Smith's work on Canada, it will be found that the Huron District has made more rapid progress since its first settlement in 1827, than Lower Canada did in one hundred and four years, its population then being (in 1721) 24,511.

It should be borne in mind that the population of the United Counties, by the census returns, is composed of natives of England, Scotland and Ireland, French Canadians, British Canadians, Germans, Dutch, United States, and other countries, living in peaceful neighbourhood, all rejoicing under twenty different sub-divisions of the Christian faith, but by hypothesis not likely to remain in good fellowship. Daily experience, however, proves the contrary.

As regards the statistics of crime—and really the piccadilloes committed in 1850 do not deserve so high a title—I shall first state those returned in 1848.

Convictions made by Justices in 1848,	174
Tried at Quarter Sessions, - - -	13
Deduct acquitted, - - -	7
	6

Total convicted in 1848, - - -	180
Convictions by Justices in 1850 - - -	120
Tried at Quarter Sessions - - -	1
Deduct acquitted, - - -	1
	120

Decrease of convictions for 1850, -	60
Amount of fines, penalties or damages imposed by Justices in 1848, - - -	£112 19 8
Amount imposed in 1850, £85 19 1	
Deduct amount remitted, 27 18 2	
	58 0 11

Decrease of fines for 1850, -	£ 64 18 9
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It is with no invidious feeling that I would here contrast the above with the statistics of crime for the city of Toronto for 1850, the number of parties apprehended there being 1,608, the city having a similar amount of population with the Huron. Such, however, is the melancholy

difference between a city and an agricultural population.

In this favoured portion of the province of Upper Canada—blest with a salubrious climate and a fertile soil, watered with crystal springs and brooks in every direction, reposing upon a table land whose natural drainage flows uninterruptedly onwards to the streams and great rivers which intersect it in every quarter towards the noble Huron or lake St. Clair—the energies of the people have been steadily devoted to practical progress and improvement, having in the short period above alluded to brought upwards of eighty thousand acres of the wilderness under cultivation, erected five thousand dwelling-houses, fifty-six schools, fourteen churches, twelve grist mills with nineteen run of stones, five oat and barley mills, five distilleries, two breweries, eight tanneries, and twenty-four pot and pearl ash factories.

Among other matters which crowned their industry in 1850, I may shortly state the following productions:—

Wheat	292,949	bushels.
Barley	13,012	"
Rye	2,181	"
Oats	215,415	"
Peas	54,657	"
Indian corn	5,352	"
Potatoes	210,913	"
Buckwheat	673	"
Mangel wurtzel	297	"
Turnips	143,725	"
Hay	12,823	tons.
Flax or Hemp	7,359	pounds.
Maple sugar	351,721	"
Wool	54,347	"
Fulled cloth	10,303	yards.
Linen or cotton cloth	1,197	"
Flannel or other unfulled cloth	41,397	"
Cheese for market	7,761	pounds.
Butter for market	58,873	"
Beef or pork for market	1,308	barrels.

And they further rejoice in the possession of the following stock:—

Neat cattle	26,260
Horses	2,646
Sheep	20,022
Hogs	14,655

The above gratifying examples speak loudly for the industry of the settlers; and where hired labour can with difficulty be obtained at a high remuneration, notwithstanding the yearly increasing ratio of new comers, and moreover where all are diligently employed in the onward march to happiness and independence, we may truly be thankful to a superintending Providence that prosperity is in the ascendant, and that crime is on the decline.

All which is respectfully submitted by
DANIEL LIZARS,
Clerk of the Peace.

Office of the Clerk of the Peace, }
Goderich, May, 1851. }

A CRYSTAL COW-HOUSE.—An experiment of this nature has been tried by T. W. L. Lawford, Esq., F. H.S., of Firdail, near Llandilo. The building is 96 feet long by 18 feet wide. Mr. Lawford has found

that his cattle increase more in health under a transparent roof than under one of impervious material. And not only is there this advantage, but a cow-house constructed of glass is cheaper than those now in use.—Mr. Lawford has flowers, strawberries and grapes, &c., growing under the same roof, which expedient constitutes another advantage, as an amount of heat is secured, which is favorable to the cattle, and repels frost. He has been so much pleased with the success of the experiment that he has erected a larger one for the accommodation of two lines of cattle.

CAPABILITIES OF CANADA—PROFESSOR JOHNSTON, &c.

For the Canadian Agriculturist.

{ WOODSTOCK, C. W.,
{ March 29, 1852.

SIR:—Having carefully read, and still more carefully thought over, Professor Johnston's able work on a visit to New Brunswick and the Northern parts of the United States, it has frequently occurred to me that it would be of inestimable consequence to this Province to induce him to extend his services to it. I believe even Canadians themselves (except some few surveyors and others whose vocations call them all over the Province) know little or nothing of the Agricultural capabilities of the different sections of their country, and there are few people who would not appreciate the value of such information. The general ignorance of the English public concerning Canada also requires very great enlightenment in all that relates to the soil and climate of this Province. I believe that in all respects there can hardly be a finer country in the world than Canada; but, in England, Canada is classed in the same category with Hudson's Bay and the extreme North of the continent, viz., intense frost and snow for eight or nine months in the year, and violent heat, with a plague of flies, for the other three or four. Professor Johnston's work on New Brunswick and the late very creditable show made at the World's Exhibition in Hyde Park, by Canada, certainly ought to have disabused the minds of the English public on that point; but still official information, derived from one of his high standing, would certainly be of great advantage to the country in pointing out a vast field, not only of lands already cleared, but also in our primeval forests, for the industrious emigrant to achieve for himself and his family a certain independence, and that, too, without forfeiting his rights and privileges as a British subject.

But more particularly would I insist on the immense, the inappreciable value to the farmer of information from a man of his great acquirements and experience. Pointing out our best and most fertile tracts of land, with the geology of each, detailing all the points of husbandry

observable during a lengthened stay in the Province, holding up the good for imitation, the bad for a warning, it would be both for the present time and for ever, invaluable for reference and instruction.

And surely a country that possesses a Board of Agriculture, in direct communication with the Government; a national University in which Agriculture holds a distinguished place for study under its able Professor; a Legislature that devotes no small portion of its energies to fostering the most ancient, the most necessary art of all, that of producing food for the maintenance of human life, would surely not object to lead the way, if applied to in order to provide the necessary means for defraying the expense of the proposed visit. If this desirable arrangement could be effected, Canada would thus unite all the energies she now possesses in harmonious co-operation for the greatest benefit which could be bestowed upon the whole community, the practical development of her immense and yet untried Agricultural resources.

I remain, Sir,

Yours faithfully,

A HAMILTON FARMER.

We strongly recommend the important suggestion of our correspondent to the consideration of our legislative authorities, and all who can influence public opinion.

IMPROVED BREEDS OF CATTLE.

For the Canadian Agriculturist.

DEAR SIR,—I must trouble you once more, on the comparative merits of Herefords and Short Horns; and, by that time, I suppose Mr. Parson's *statistics* will appear and speak for themselves. If they require any further answer, I will reply.

I know there has been some instances of *Durhams* producing an extra quantity of milk, and in a few instances a heavy amount of butter, but this proves nothing; on the other hand, in eight cases out of ten, it takes the milk of two Short Horn Cows, with a quantity of meal added, to raise a bull calf fit for sale, in the present state of the Short Horn Market, where flesh, even of inferior quality, fills the eye of the *high priced* purchaser. As long as this state of things exist, the buyer and seller are both losers, for it is an unprofitable system to pursue. The former is deceived when the calf is reduced to *store condition*, which he must be, to do the service required, and the herd of the latter is *disgraced*, when a *true and correct system* has reduced him to a proper breeding position, to the injury of his constitution. His defects are then made *plain to the eye*, which so *costly a covering has hid*, and decidedly to the discredit of both parties. I am not saying this to *practical breeders*, for I know they are already aware of it; but in order to sell

their stock, are obliged to suit *the eye* of the *monied novice*. A large male without quality, will often suit such customers, and such an animal is a curse to his owner and the country. *Good breeders* should not allow themselves to be led away from a proper standard of excellence, *by such temporary inducements*, and the milk and meal given is scarcely ever taken into proper consideration. I am plain to say that this is the principal error of Short Horn breeders, *large forced size* has been too much their object, more especially in sires. Let me here state one fact, that I have observed through life. A large coarse cow seldom or ever produces a *heavy, meaty, quality ox*, or steer; they are generally bred from cows of medium size. Symmetrical, compact, and short-legged beasts are those that *weigh*, and suit the first class butchers and consumers. I would rather trust the smaller than the larger size for this, with equal pedigree. A large coarse size never produces a prize, or saleable offspring. Breeders' herds should be uniform in size and symmetry, and whenever their object has been *extreme size, at the expense of fashion*, their failure has always proved certain. Short Horn breeders, in attempting this, have increased their size in paunch and bone, with which is invariably connected hollow crops; with these objections other inferior points follow, such as wide edge, or round bone, often wider than their hips, their rumps short and low, with high tail. Such animals have a thick heavy thigh, the thick coarse muscles running from the round bone to the hock, forming a thick coarse buttock, supported by a large boned, coarse leg. The sides, as Cully describes, "being one laying of black flesh across another; the shoulder bones large, the points projecting. Such beasts are sure to be bad *flabby* handlers, never (on ordinary keeping, get very thin; are *large* consumers) but never get fat; will get fleshy, but, when it is on, is no better than bull beef."

I have handled many Short Horns, with *high pedigrees*, with all the above objections, and *know* it is the descent from this combination of evils *bred in them*, that has caused their great overthrow, at Smithfield Show. The butchers have been deceived; *they do not die the weight they appear to live*, and the quality of meat will not suit the London customers. Mr. Gurrier, the well known and extensive salesman, for upwards of forty years, in a letter to me formerly published in the *Albany Cultivator*, says: "I cannot sell a Short Horn in Smithfield, to first class butchers, as long as there is a Scott or Hereford in market. *This is undoubtedly so*, and has been for upwards of twenty years." Another fact. They have been *puffed up* by writers who were not *practical men*, and those who did not know their *real qualities*, and who gained their information from others no better informed than themselves. Most of these men have been *paid for that puffing*, which I can prove.

I will show one case of extraordinary milking Herefords, although I could refer to several; but that is not the object; a good average produce of twenty cows for nine months would be desirable, which I will endeavour to procure at some future

period, when circumstances will admit. Mr. Kingman, of Clark County, Ohio, states in a letter to the *Albany Cultivator*, for July 1841, page 116, "that a neighbour of his had a Hereford cow that made sixteen pounds of butter per week." This is enough for *any* cow, and must be quoted as *extra*. I will now quote a letter to me published in the *Cultivator*, from Mr. Turner, Court of Noak, Herefordshire, England, a breeder well known and approved as an excellent judge, and whose sales of Herefords have been as high as most men's. He says: "As regards the Herefords for milking purposes, I can speak from experience, that, when well kept, few will answer better. I can give an instance of a prime cow of my father's producing thirteen pounds of butter per week, when allowed hay and cabbage the whole of the winter; but the principle of the Herefords being the stock, little attention is paid to the dairy. We all know, to keep up cows to their milk, requires the most nutritious food, which is seldom allowed to cows in this country."

I will now quote my own dairy; and will refer you to a letter of mine, in *Albany Cultivator*, 1843, in which I gave a statement of butter made from my cows, taken from the book of Mrs. Sheldrick, who skimmed the milk, made the butter, and kept an account of it, and the cheese and cream, as it was sold. What we used in the house was not included, which was no small item. There were nine three years old heifers, with their first calf, two four year old, and one seven, milked during the month of March; I sold Cherry, a three year old, on the 2nd of April; from that time until the 1st of October, I milked eleven. The following is a statement of butter and its equivalent:

From March 1, to October 1, butter	-	1456½ lbs.
35 cream cheeses, equal to 3 lbs. butter each	- - - - -	105
113 quarts of cream sold	- - - - -	113
		1674½ lbs.

I do not bring this forward as anything *uncommon*—it is not so; but shows the herd in its *general produce*, and, I think, for so large a portion of heifers, is *passable*. This was done on common keeping, and dry weather in August and September, and on land not adapted for milking purposes. The pastures were clover and timothy, on high, sandy, hilly soil, at Albany. On the following year, 1844, I submitted another statement of the amount of butter made from the 5th to 11th of January, from some of the same cows fed on brewers' grains and hay:

Lucy, 4 years old, calved	Nov'r 28	— 7 days.
Martha, 8 do. "	Dec'r 28	— 7 "
Catherine, 4 do. "	Jan'y 2	— 7 "
Victoria, 4 do. "	Jan'y 4	— 5 "
Spot, 4 do. "	Jan'y 4	— 5 "
Perfection, 4 do. "	Jan'y 4	— 5 "
Matilda, 3 do. "	Jan'y 7	— 2 "

38 days.

Equal to the milk of one cow, thirty-eight days, we had forty-eight and a quarter pounds of butter weighed in separate pounds. This gave a fraction over 8 lbs. per week for each cow, on an

average. These are the only times I ever made trial of weight of butter, and these were made as from *every day's proceedings*, not from *forced feed for the purpose*, but at the spur of the moment. When my dairy was called in question, I referred immediately to my housekeeper's books for the actual weight as it was. The last statement was made as soon as the butter was out of the churn, made up and weighed, and the number of days of each cow reckoned. It was then sent to the *Cultivator*. The calves of these cows were all raised on skim milk, and never allowed to suck the cows at all, which I think is the only true way to raise cattle for profit. If an animal is forced when young, you must continue to *feed high* through life; a calf kept in *growing condition*, is all that is necessary; they would not be suitable to sell to a *novice* at that age, or show for a premium where judges make *flesh* the most predominant and prevailing standard. I will send you the weight of butter of my whole herd, at some future period, when some of your Short Horn men have produced a similar statement of their herd, taken from the book of their dairy maid, without forcing.

I wish the Board of Agriculture in Canada, and members of New York Agricultural Society, would take some steps to test the merits of the various breeds. It is perfect nonsense to say one breed is not better than another. I contend that Herefords will do best on any soil, in any climate, and will live where any other kind of cattle will live, and pay more than Short Horns on *high keeping*. It is those only who say they cannot contend against each other, who *fear the result*. Let these Societies offer premiums that would bring them into fair competition with each other, it would be the best premium they could offer, and one that would accomplish most. All I ask is a clear stage *and no favour*.

Mr. Parsons was probably led into the error of the *early maturity of Short Horns*, by reading Mr. Keary's essay, which Mr. Smythies *proves, in answer, to have no foundation at all*,—and in the latter part of a short letter, Dec. 30, 1850, he says: "Mr. Keary, I have no doubt, was led into *his* error by observing that Short Horns were usually slaughtered at an early age, and *knowing little about Herefords*, was not aware that the treatment of the two breeds generally was totally different, the Short Horns being high kept, and on the best land from their birth, and brought out at two years old, while the Herefords are bred in a country where there is a great deal of poor pasture, when they are kept until two years old, and then sold to feed; but this does not prove that, if the Herefords are as well kept, they will not come out as soon, but the contrary has always been the result, when they have been tried against each other. The late Duke of Bedford tried it, and the Herefords beat the Short Horns. I remember another instance, where the result was the same. The Rev. Henry Berry, who was a celebrated Short Horn breeder, showed a yearling Short Horn Heifer at Sir Charles Morgan's show at Trediga, and was beaten by a yearling heifer of Mr. John White's of Upleaden. Mr. Berry challenged to show the two heifers again the following year. Mr. White accepted

the challenge, and I saw them both there the next year. Mr. White's Hereford had gained 112 lbs. more than Mr. Berry's Short Horn; this was to be the only criterion by which the bet was to be decided."

After the instances I have adduced, and I have never met with a single instance where the result has been the other way, I think I have a right to conclude that Mr. Parsons' letter has no foundation *in fact*, and his position had no right to have been taken. I think it is generally admitted, even by Short Horn men, that the Hereford oxen are best for the yoke.

As a "finis," I copy Mr. Smythies' last letter from the *Mark Lane Express*, which please publish; it is strong, *sound*, and every word of it true.

I will write you an article on the principles of breeding, if you wish it.

Yours sincerely,

WM. HY. SOTHAM.

P. S.—Please publish this in your May number, and I will send you Mr. Smythies' letter in my next, which is very strong and sound.

ON THE USE OF GYPSUM AS MANURE.

(From the *Paris Star*.)

MR. EDITOR,—In complying with your request to state the advantages of Gypsum or Plaster of Paris, as manure, an observation of the late Sir John Sinclair, who for many years was the respected President of the Board of Agriculture in Sackville street, will not be inappropriate, "That man who grows two blades of grass where only one grew before is a benefactor to his country," now the free application of Gypsum will not only make every farmer so doing a benefactor to his country, but most certainly a benefactor to himself also.

The time is now at hand, when the application of Gypsum as manure, will be most effective, this fact will be explained in the solution of the Yankee maxim, that "snow is the Poor man's manure." The Chemists have proved that Ammonia is an essential ingredient in all manure, and that it is extensively deposited in snow, and Ammonia, being a Volatile Alkali, it will to a considerable extent, be dissipated if not fixed by Gypsum, for which it has peculiar affinity. This will be sufficient to show that Gypsum should be sown as early as possible after the snow is gone.

Any practical Farmer from the best Agricultural Districts in England, where they lay out from two hundred to five hundred dollars annually in Guano and Bone Dust, would scarcely believe that results equally beneficial to our Grass and Hay Crops are attained by the application of this mineral at the trifling cost of 25 cents per acre. In recommending the liberal use of Gypsum, I have at present only to state a few remarks on the kind of Gypsum most beneficial as manure, and in the next place, the crops and description of soil on which its agency is most effective, much has been stated respecting the compara-

tive merits of the pure white and the slate colour or brown variety; from my own experience during fifteen years, I am prepared to prove that the slate colour Gypsum, so abundant in the mines near Paris, is by far better for manure, than the white variety prevalent near Caledonia, this fact may be satisfactorily explained on scientific principles from its two-fold agency. It is well known that Carbonic Acid Gas constitutes a large part of the brown Gypsum, it is indeed the Carbon that gives the colour, and any one may satisfy himself of the presence of the Gas by going into the mill when this kind of Gypsum is grinding; in bringing proof of the powerful agency of Carbonic Acid Gas as a stimulant to vegetation, its effect may be seen on a large scale in the water meadows in the chalk sections of England, my own meadows of this description in Dorsetshire were annually fed off twice in the spring with sheep, and afterwards grew two Tons of Hay per acre, the value of such meadows vary from two pounds to five pounds per acre per annum. It is a remarkable Geological feature in America that there is an entire absence of the interesting and useful mineral called or known as chalk, which in Europe extends over a large section constituting immense deposits of Lime in combination with Carbonic Acid Gas, from the surface to unknown depths, some of the springs in these sections are saturated with Carbonic Acid Gas, and hence the extraordinary fertilizing effect of the water. The great chalk formation, properly so called, commences in the Eastern Counties of England, and dips in the S. E. under the Isle of Wight and Purbeck, but rises again in the S. E. in France, is again found in the Mediteranian seas and in ancient Palestine, and again in the distant S. E. constituting the the sheep walks in Australia; when surveying the extensive manors of the Marquess of Salisbury in 1836, I was directed to make a series of Borings to ascertain the angle of Dip in this great Bason, so well described by Dr. Buckland, now the afflicted Dean of Westminster.

Having already exceeded the limits of my intended communication, I must postpone the remaining topics as to crops and soil, to some early leisure, and have only to add a remark or two on our position and prospects. Although we have not in this country any one at the head of our Department whose experience and general position will approximate to the attainments of the Illustrious Baronet before alluded to, still I very much disapprove of the conduct of those who are so loud and severe in their condemnation of untried men, let us see what these unpledged Farmers will attempt to do, before we deliver our verdict, possibly my old friends the Hon. Inspector General, and the Hon. Malcolm Cameron, with the lucky batch of young Agriculturists at our new Institution may teach us some great practical lessons, to which I for one, shall listen with all due humility.

Your obedient Servant,

HENRY MOYLE.

Sheep Walk, near Paris, C. W.
April 1852.

MEASUREMENT OF LIVE STOCK.

If the breeders of stock would measure their animals at stated periods of their growth, carefully noting their condition and keep, and all other circumstances affecting their progress, much light of a practically useful character would doubtless be thrown on this very interesting and highly important department of rural economy. *Weight* is an element that should also be taken into such calculations. Few farmers, however, have the means of readily weighing live animals, whereas measurement may at all times be easily taken.

We make the foregoing suggestion from having been favoured with the subjoined calculations by the Honourable ADAM FERGUSON, relating to a portion of his own herd, which, as is well known, consists of the improved *Short Horns*, from the celebrated Bates' blood of Kirkleavington, in England. The following measurements refer to Heifers calved in 1850, and kept in the ordinary way.

Name.	Girth.		Length.		Date of Meas't.
	Feet.	Inch.	Feet.	Inch.	
Mayflower, - - -	5	10	4	7	Dec. 12, 1852.
Adelaide, - - -	5	10	4	10	do. do.
Hawthorn, - - -	5	10	4	5	do. do.
Dairymaid, - - -	5	6	4	2	do. do.
Duchess, - - -	5	9	4	6	do. do.
Sprightly, - - -	5	10	4	10	do. do.
Countess, - - -	5	9	4	6	do. do.
Mayflower, - - -	6	0	4	10	April 17, 1852.
Adelaide, - - -	6	2	5	0	do. do.
Hawthorn, - - -	6	0	4	11	do. do.
Dairymaid, - - -	5	7	4	10	do. do.
Duchess, - - -	6	0	5	2	do. do.
Sprightly, - - -	6	0	5	0	do. do.
Countess, - - -	5	10	4	10	do. do.

A RUSSIAN PRESENT TO ENGLAND.

The Imperial Agricultural Society at Moscow have transmitted to the Royal Agricultural Society of England, several models of Agricultural machines, as well as samples of farm produce, which await the instructions of the Council as to their disposal. This circumstance affords pleasing evidence of the amity between different nations which the encouragement of Agriculture—an art essentially one of peace—is so well calcula'ed to promote. We should like to see useful importations of a similar character in Canada, and hope that our Board of Agriculture will turn its early attention to the subject.

CANADIAN FACTORIES,—FURNACES AND MILLS,—AT NIAGARA FALLS.

To the Editor of the Canadian Agriculturist.

SIR,—Having promised to give you some account of my journey round the Lake last month to the Falls, I proceed to do so, not having travelled that road for two or three years.

I could not avoid noticing the very striking improvements in Farm houses and Farmsteads, on the whole route, more especially on the Dundas Road, where you are never out of sight of a good new and substantial Brick, Stone, or Rough-Cast Farm house, on a spot selected with more or less degree of taste, on high ground, and some distance from the Road, unlike most of the old homesteads close to the Road, which afforded the hog pasture and sheep walk, when cleared acres were scarce.

The barns and sheds are also greatly enlarged and improved, I really think many of them covering an acre or more, and I must say I think the finest outbuildings in this Province are on the south side of Lake Ontario. I am unable to say anything of the Wheat or appearance of the Farms, for both the fields and the fences were covered with snow, and the roads so much so that I had to drive through the fields, and almost over the fences. The farmers on all this road have every appearance of plenty and comfort. I was much struck with the fine look of the farmers' horses, of which I saw a great many, the Farmers having turned out in great numbers to sell in consequence of the rise in the price of Wheat. I saw many pairs as good and as fine looking as any of the carriage horses in Toronto or Hamilton, and some of them hauling over ninety bushels of Wheat per load; the farmers looking a cheerful happy lot. During the time I was from home (above two weeks,) I never saw one drunken man, and, of course, not even the shadow of a drunken woman.

You may imagine my great surprise to find in the neighborhood of the greatest water power in the world, the Niagara Falls, all the machinery driven by Steam, except a very fine and extensive woollen factory, lately built by the President of our Provincial Agricultural Association, Thomas C. Street, Esq., M. P. P.

The steam power to which I refer is the property of O. T. Macklem, Esq., one of our late delegates to the World's Exhibition (from the same Society,) whence he brought some very valuable tools and machines; no doubt the finest in the Province. They reminded me more than anything else of elephants standing, in the different shops,—they are so immensely large.

The establishment consists in part of a Tannery driven by Steam, and heated by the spent

bark only of the Tannery, shovelled in like saw dust.

In this establishment they tan both Sole and Upper Leather; quantities of which I saw about the place, and an English gentleman, who travelled with me, said he had never in this country seen Sole Leather so like that made at home. Judging from the space occupied, the quantity of machinery in operation, and the immense stacks of bark and different kinds of stock, the demand to keep such an establishment in operation must be very great, and I am informed that so much as thirty thousand pounds worth has been disposed of in one year!

I also visited the same gentleman's Foundry, which is a curiosity in its way. Machinery, all of the most elegant description, is applied to the manufacture of the various parts of Steam Engines, and other work, and all moving with an ease and precision quite astonishing. On one hand you see iron planed to perfection; then, by another magnificent affair, called a Radial-Drill, which sweeps a circle of sixteen feet, boring is done with an ease and velocity truly wonderful. Another interesting machine is one for morticing iron, forcing its way through it as through wood; there is also a machine for cutting bolts and bars, fitted up with what are called taps and dies, capable of cutting screws from a quarter of an inch to two and a half diameter, and I can only describe the number and quantity of tools and other matters attached to this as legion. I also noticed a series of gauges from a quarter of an inch, male and female, up to six inches, so that all the turning in this establishment is fitted with the greatest accuracy. Self-acting and other turning lathes are all round capable of turning from eight feet diameter, down to the quarter gauge; and I saw one in operation cutting a beautiful square-threaded screw about three inches in diameter—and twenty feet long. But the most interesting and complete of all is a shaping machine, self-acting, which forms iron, without manual aid, into every imaginable shape; it looks like magic; the whole is put in motion by a twenty-five horse power steam engine, built on the premises, operating without noise or vibration, and apparently without effort; and on enquiry I learned that the only fuel used was the wet tanbark, after being used in the tan yard, and consumed by means of a great draft and conical shaped grate bars.

Amongst the other works driven by this engine are two large blast cylinders, one of five feet diameter, which blows an immense cupole in the new Stove Foundry, a building over two hundred feet long, by sixty wide, large enough I should think to make all the stoves required in Upper Canada; the owner must have great faith in the capabilities of the Province to to

CONSUME STOVES; his pattern room is quite a museum; those that can't be suited must be hard to please indeed. I had almost forgotten to mention the Boiler Manufactory, and amongst other things of that sort in hand was a Gasometer, to light the great Clifton House this season with gas, over thirty feet diameter and ten high,—a large iron vessel.

I also visited the Steam Saw Mills of the same gentleman; three on the muley principle in its most perfect form were in operation; the rate at which they run is truly terrific, but everything moves without jar or noise, averaging for each Saw, per day, ten thousand feet of boards, and these boilers heated with the saw dust and slabs, the whole of this machinery, made at the Foundry; and I must say constitute by far the most complete things of the kind I ever saw; and I was informed cost much less than the old fashioned slow mills I have been in the habit of seeing from my youth. Well, we Canadians must live and learn.

And since last summer, in the same place, has been erected a handsome Steam Flouring Mill, belonging to James Cummings, Esq., ex-M. P. P., which, on going over, I found to contain three run of French Burrs, operating night and day; it is quite a model of a Mill, everything of the best, and most improved description; the engine and machinery were built at the same Foundry, the whole partaking of the smooth, noiseless action and elegance of form of their other works. This was the only engine where they required to buy fuel.

Pray excuse the length of this letter; but when on this subject of improvement in my native wilds and SNOW, (here is the twenty-fourth of March, and six inches of snow on the ground, and snowing as fiercely as if it was December, when last year, at this time, I had five acres of Spring Wheat sown,) I scarcely know where to end.

R. L. D.

Township of York.

We shall be happy to receive similar communications to the above from other portions of the Province. The facts stated by our correspondent are of a very interesting and encouraging character; and many such, we are persuaded, could be furnished by other sections of the country. The manufacturing and commercial capabilities of Canada,—a portion of the earth's surface absolutely unrivalled in water power and communication,—are only *beginning* to be developed: and how closely the interests of Agriculture are interwoven with the success of these pursuits, most of our readers must be well aware. Our motto should be:—THE PLOUGH,—THE LOOM,—AND THE SAIL.—*Editor.*

TOWNSHIP OF HAMILTON FARMERS' CLUB.

DRILL HUSBANDRY.

From the Cobourg Star.

At a meeting of the Township of Hamilton Farmers' Club, held at Wilson's Inn, Court House, on Saturday, March 27th, 1852.

John Wade, Esq., President, in the Chair.

Present—Messrs. Sutherland, McNeil, Underwood, Baptist, Stiles, Black, Brown, Masson, Page, Wright, Alcorn, A. J. Burnham, &c.

The subject of Drill Husbandry was brought before the Club by Mr. P. R. Wright reading the following Paper:—

That we are rapidly approaching a period when the substitution of that which is natural, right, and becoming, for that which is chiefly recommended by being traditional, there can be very little doubt, when that which is *wrong* in existing systems, usages, institutions, and conventionalities, must give place to that which is *right*,—when the flood of light, which science is duly pouring forth, from the laboratories of Liebig, Johnston, Norton, and other less celebrated chemists, must penetrate the darkness of prejudice, and dispel for ever, the superstitious pertinacity with which the agricultural body clings to dogmas of antediluvian descent, when the whole world will be lighted up with the brilliant scintillations of science and practice going hand in hand.

The subject which I have undertaken to introduce, has had, like most improvements in agriculture, to struggle through a period of more than a century without having its advantages, as a system, fully recognized. Fifty years ago it was prophesied by an eminent writer that "future experiments would determine the comparative merits of the drill and broadcast methods of growing plants in favour of the "drill;" but, although the prediction is gradually and steadily progressing to its fulfilment, the question is yet so undecided, as forcibly to prove the fact, that improvements in agriculture have been tediously slow, when compared with the rapid advancement of commerce, physical science, and the mechanical arts; the reason for discrepancy, if we except the last few years, may no doubt be found, in the fact, that agricultural improvement has not been the result of the combined influences of science and practice, but the tardy growth of a desultory and contradictory experience.

The plan of cultivating field plants in parallel rows, originated with, or at least was first practised in England, by Tull, in the beginning of last century, and although his system has been proved to be theoretically, and practically erroneous; the operations connected with it are undoubtedly powerful means for preparing the constituents of the soil for becoming the proper food of plants. Tull saw, no doubt, that mere ploughing and rough harrowing were not cultivation, and that the soil required not only to be stirred before sowing the seed, but also after the plants had appeared, in order that weeds might be extirpated, and fresh particles of soil brought

in contact with the root of the plant. He therefore adopted the plan of sowing in drill, and hoeing the interval, and his success without the aid of manure, which he condemned as useless, was such as to attract the attention of the public, and of course its censure also.

Without farther preface, I proceed to point out some of the advantages of Drill Husbandry applied to turnips, but first let me warn those of you who dread a long lecture, that I intend being brief, and pardon me for expecting a little attention; I want the subject discussed that I may gain information, if my views are quietly acquiesced in, then I shall leave this Club meeting, a solitary exception let me assure you, without being improved.

In the northern counties of Scotland, where my experience in Farm operations was chiefly acquired, the most successful growers of turnips have by common consent rendered their cultivation in drills nearly absolute, the only deviation from this course being the market gardeners, whose object is to obtain a numerous crop of small sweet bulbs for the table.

In field cultivation it is the practice to sow on raised drills of various widths, according to the nature of the soil, but in some cases they are drilled on the flat surface—a mode of culture I have determined to adopt; for several years past my turnips have invariably failed, indeed with one exception, they have never exceeded half a crop, and although on such land as mine—a stiff clay loam, one cannot expect great crops, still I deem it possible to go beyond the maximum of mine; my plan has hitherto been that first noticed—to sow in raised drills, on well rotted manure; now in this climate, which is most assuredly from its aridity very unfavourable for the growth of this vegetable, it appears to me this practice has been in my case the cause of failure; in raised drills a much greater surface is exposed, the drought soon penetrates to the manure, which is for the crop, rendered useless, and when we happen to have a thunder-shower, it is the bottom of the drill receives the benefit, whilst the plant on the top is in a few hours as parched as ever—this looks like error, and until I receive more light, shall plough down a sufficient quantity of manure in the fall with a light furrow, use the cultivator liberally in spring, cross plough lightly, drag to perfection, sow in rows two feet apart, and *if the bug leave me any plants*, thin out to 15 inches, hoe as often as required, and trust to Providence for a crop.

It is useless in such a meeting as this, composed chiefly of practical Farmers, to urge the propriety of following out the drill system; but as I met a man the other day, a *rara avis*, who maintained a strong argument in favour of broadcast sowing, I will take the liberty of laying before him and his disciples a few reasons for holding an opposite opinion: the raised drills, which in some soils answer admirably, have these prominent recommendations, the seed can be deposited with perfect accuracy above the manure, perfect facility for cleaning and pulverizing the blank spaces between the rows, and the best opportunity afforded for properly hoeing;

the turnip requiring that the earth should be drawn from the plant; these are advantages which speak for themselves, besides much of the requisite labour can be performed by the horse hoe, or scarifier, (implements which, as the cultivation of green crops in Canada progresses, must come into general use,) by which the ground can be reduced and pulverized to a degree highly favourable to the growth of the plant, whilst their rapidly increasing leaves, and swelling bulbs, effectually prevent the springing of surface weeds; I think, however, that the plan of drilling on the surface, partaking generally of these advantages, has another of paramount im-

portance, namely: that a much less surface is exposed to the powerfully evaporative action of sun and wind, and this, on all soils which are impatient of drought, is certainly to be desiderated; although I have only spoken of the turnip, there is no doubt but potatoes, beets, carrots, and other esculents partake equally in the advantages of drilling.

I shall conclude this part of the subject with a table of experiments made to test the relative merits of ridge drilling, flat drilling and broadcast sowing, from "Dickson's Practical Agriculture," the extent of ground operated on was one fortieth of an acre, and resulted as follows:

First Experiment.	No. of bulbs.	Weight of bulbs.	Weight of tops.	Average wt. of bulbs.	Weight per acre.	Average dis. of each T.
		cwts. qrs. lbs.	cwts. qrs. lbs.	lbs. oz.	tons. cwt.	
No. 1. Raised drills 27 inches wide	354	8 1 1	1 1 3	2 9½	16 10	17x27
2 Flat drills 21 inches . .	428	7 1 15½	1 1 5½	1 15	14 15	17x21
3 Broadcast	568	7 2 12½	1 0 11½	1 8	15 4	17x17
<i>Second Experiment.</i>						
No. 4 raised drills 27 inches	334	8 3 0	1 1 22	2 15	17 10	17x27
No. 5 Broadcast	628	8 2 2½	1 1 8	1 9	17 8	16x16

Although the system I advocate for our climate—drilling on the flat surface—appears to disadvantage in these tables, I think a similar trial here would produce a different result; and although broadcasting comes close to raised drills, it has one disadvantage at least, so far as Rutabaga is concerned, viz., that the larger the bulb is, the more nutritious, and if tried by this standard, the value of the crop would be greatly deteriorated.

I believe it premature, in the present state of our husbandry, to speak of the practice of drilling peas and other leguminous plants, but in the well farmed districts of the mother country it has generally obtained and has proved a preferable mode to broadcast sowing; all such plants, especially in case of blight, or premature ripening, have a tendency to leave a foul stubble, and the purpose of a bastard fallow is completely defeated, if the crop has not been subjected to the meliorating influences of the hoe.

I now observe, in regard to the drilling of cereals, that in every district of the old country aye, and in this, where improved cultivation prevails, the practice of drilling wheat is steadily progressing, the advantage of a drilled over a broadcast crop (if the hoe has been used) is the cleaner condition of the land afterwards, is one which no Farmer will underrate; without the hoe, unless as a preventive for winter killing or throwing out, I beg to be distinctly understood as of opinion that *the real benefits of this system will not be apparent*—if properly conducted, less labour is really required to grow good crops throughout a rotation by drilling than by sowing broadcast; a small amount of labour applied to

each crop in succession, at the proper season, is more effectual and economical than to leave the whole of the cleaning to be accomplished during the year of green crop, the land will yield its increase more uniformly, and independently of the seasons, than by the broadcast method of sowing when the control of the Farmer over the land almost ceases as soon as he has sown the seed and harrowed it in.

The principal error which has been committed in regard to wheat drilled on light land has undoubtedly been the use of too much seed, thus producing more plants than can be properly matured, for as our friend Mr. Page remarks (on a kindred subject) "if there is only sufficient nourishment for two plants in a given space, it is self-evident five must starve." On thin soils, drilling and thin seeding should go hand in hand, and be followed up by a frequent use of the hoe; the fact is overlooked in too many cases, that a thinly drilled crop of wheat will withstand more drought, and produce a better yield, on thin soils, than if the land were sown thicker, and this holds equally in regard to broadcasting; a too thick drilled crop is evidently in a worse condition than if sown broadcast, for every practical man must have observed the tenacity with which plants in rows maintain their hold of the ground; whereas in broadcast it generally thins out of its own accord and overcrowding is partially remedied, the former, the result of the seed being all equally deposited at a uniform depth, the plants in consequence all equally rooted; while in the latter, the chance operation of harrowing covering the seed unequally, producing unequally rooted plants and the weak die out to make way for

strong. To show clearly one advantage of the drill over the old method which most of us will be inclined to value, namely increased yield per acre, I submit the result of an experiment made 50 years ago, and of undoubted authority.

Drilled acre			
Produce 46 Bushels a 5s. 6d.	-	-	£9 18 0
Rent seed and cost of cultivation	-	2 11 10	
			£7 6 2

Broadcast acre			
Produce 30 Bushels a 5s. 6d.	-	-	8 5 0
Rent seed and cost	-	-	2 13 3
			5 11 9
Balance in favour of drill	-	-	1 14 5

Many similar experiments have been made affording much the same results, and yet with these facts staring us in the face, we still adhere to a practice, which has little to recommend it but its antiquity, what stronger proof need we of the apathy which so tardily adopts any agricultural improvement?

In thus briefly introducing the subject for discussion, my object has been more to urge its adoption than enter into practical details, being well convinced *our club* needs no drilling on that head, trusting to stimulate those who have not commenced the practice, to follow those enterprising and sagacious pioneers who have taken the post of honour in this as in other improvements; in conclusion, the advantages of the drill may be summed up briefly as follows—a saving of seed equal to at least 75 per cent., probably 100.

The plant will maintain its hold of the ground during the prevalence of frosty nights and warm suns—the thistle, wild mustard, and other pests, are kept in proper subjection if not eradicated,—the soil pulverized and exposed to the action of air, increasing its fertility—the crop is not so liable to lodge—the yield per acre is increased,—and we have a clean stubble—I now place the subject in your hands, and trust it will not be left without a thorough separation of the wheat from the chaff.

Mr. Sutherland was sorry to say that his experience on the subject was so very slight that he could say very little about it; thought that the clean or fall drill crops were kept the better; had had a good deal of difficulty to contend with last year with his root crops, as he had sown them on land where he had hay the year before, and that required a good deal of preparation. He did not approve of sowing carrots too thick—when sown very thick they came up so very delicate at first that he thought they never recovered; had a very clear proof of it in his own carrots last year; was perfectly convinced of the advantages of sowing all root crops in drills; was afraid with grain crops, it would be too expensive.

Mr. McNeil was not at all adequate to make any remarks on the subject of drilling crops, if it had been a brick or stone wall he would have been able to give an opinion on the subject; he just did as his neighbours did—removed stones when they were in the way, and made drains in wet places; he “poutered” about until he had got his place into pretty good order.

Mr. G. Underwood would not trouble them with any remarks, as he had not been very successful with his root crops for the last two years.

Mr. C. Stiles hoped he should be excused, he was but a young farmer and had come to learn.

Mr. Black had used a drill both in the Old Country and here, and thought for fall wheat it possessed great advantages; had not had much experience in sowing with the drill, but he intended to sow all his grain with the drill this spring,—Spring Wheat, Peas, &c., because that when sown with the drill you can cut out the thistles and other noxious weeds in the rows; intended to sow his peas with the drill, in rows about eighteen inches apart, so as that he could work between the rows with the scuffer—the only difficulty would be the horse trampling on the pea vines, (in reply to questions from several members, Mr. Black stated)—that it took considerable less seed with the drill, but that it took more time to sow with the drill than when sown broadcast; thought that the seed saved by the drill, would more than pay the extra labour; thought a bushel and a peck of wheat was quite enough to sow to the acre with the drill; one great advantage was that nothing trampled on the seed after it was sown with the drill, so that no seed was lost by the horses treading it too deep—the drill he sowed with was “Pennoek’s;” it sowed in rows nine inches apart: thought it better than any drill he had ever used either here or in the Old Country; the same drill served both wheat and peas; thought Mr. Wright’s ideas about drilling winter wheat correct; had some sown both broadcast and with the drill, and knew a marked difference between them; thought that drilled wheat would not throw out—it rotted out last year, but did not throw out; his drill cost 100 dollars.

Mr. Brown, after what had been said, could not add much; had not used a drill; he approved of what Mr. Black had said; thought that horses had “patched” down a great deal of seed on soft land in the spring; had no doubt but that less seed would do with the drill than when sown broadcast.

Mr. Masson thought that after what had been said, very little could be expected from him; had done nothing at sowing grain with a drill; it was seventeen years since he commenced sowing green crops in drills in Canada; when sowing his turnips the first year, every one told him he would have no crop, because he had sown them in drills, as they would not do here in drills, and he had no crop, because he did not attend to them; but next year he sowed again in drills, and attended to them, and had a good crop—and from that year to the present, he had never been without some turnips; had tried them broadcast, but found drills decidedly better; that no plan that he had seen could beat drills, either for cheapness or for good crops; had never tried wheat for drilling, as he had no drill; if he had a drill, he would certainly use it.

Mr. Page remarked that it seemed to him almost a work of supererogation to advocate the adoption of a practice which was not only dictated by common sense but recognized and sanctioned

by the most experienced and practical men in every country where the art of Agriculture was progressing favourably. It had been a generally received opinion that Jethro Tull was the originator of the system; of this however there was no proof, although it is certain he brought it into notoriety by coupling it with the plan of alternate fallowing and cropping the intervals or spaces for an indefinite time.

Mr. Wright had stated that, as a system, it is now justly exploded, but this must be considered as not applying to the linear practice, but to the idea entertained by Tull that a deep and prolonged culture of the soil was the only measure needful for continued productiveness, and this unaided by the application of any substance in the form of manure; the process consisting merely in a continual stirring every interval either with the hoe, the plough, or the spade, the latter having the preference for effecting the tillage to the greater depth. The spaces thus tilled doubtless gave out a vast amount of nutriment to the growing plant and were at the same time in a most efficient state of preparation for the crop next ensuing, when the rows and intervals would change places; thus each portion of the land would be alternately cropped and most effectually cultivated, and this ad infinitum of the same for any description of cereal, or for a continuation of the same species of plant; but this plan, however beautiful in theory, experience has shown to be erroneous in principle; for although deep and effectual cultivation will materially aid the extension of the roots of the plant and place an abundance of nutritious matter within its reach, and tend to the destruction and decomposition of such surface growth of foreign substances as it may be expedient to get rid of; still as *all* the requisite ingredients for the growth and full development of the plant are not furnished merely by tillage (however excellent) exhaustion, at no very distant period, must ensue.

The wide interval system is almost universally adopted for the growth of the Cabbage, Beans, and Corn, and for Potato and Root crops; the whole of which are unquestionably benefited by the application of the principle advocated by Tull and his enthusiastic admirer Wm. Cobbett, the increase of the crop being proportioned to the frequent culture of the intervals.

There is also a most decided advantage in the adoption of the linear system by the vast economy effected in the application of manure, its action being prolonged by the mode of its deposit by which it is made available to its utmost extent in the rapid growth of the plant; and a great diminution of manual labour is effected by the facilities afforded for the introduction of the plough or cultivator to clear the soil of weeds. The Tullian system may be said to comprise an economy of space, a saving of seed, and the most complete preparatory cultivation for the ensuing crop; but such a system, if advisable at all, could only be beneficial where rent of land is high and labour abundant; and would not be entertained where the reverse of both circumstances occur, and especially in situations where the "fee simple" of the soil may be purchased

for less than one half of one year's rent and charges in those places *which alone* could justify the practice. We certainly should not be in the least surprised to hear of the failure of any person who should, from being enamoured with the system, be enthusiastic enough to adopt it; but it certainly does occasion some surprise to find it again being brought into notice in England; he was then in possession of agricultural papers of the dates of January and February last, wherein it is urged as specially applicable to Ireland at the present time, and this founded on the practice and seven years experience of a Rev. Mr. Smith of Northamptonshire, England, who, in the course of that period has raised *on the same soil*, seven crops of wheat without any manure whatever; the last crop being the best, about 34 bushels, and yielding a profit of £8 per acre. The field is tilled in strips of five feet wide, the wheat being sowed in three rows or drills, one foot apart, on the centre of each, thus occupying only two feet of surface, and the intervals tilled by hoeing, harrowing or digging repeatedly during the season, thus cleaning the land, deepening the soil, and supplying abundant food to the growing plant; Wm. Cobbett, however, who in his prodigality allowed four feet of land to each row of wheat—admitted that the grain was subject to blight, and a peculiar discoloration of straw attributable to the constant increase of the sap from the excessive amount of nutriment supplied by the constantly stirred soil.

The drill husbandry suitable to Canadian farming is however of a different character, and will no doubt be widely extended, and it is for us to consider its practicability, its advantages, and its comparative expense.

In newly cleared lands full of stumps or encumbered with stones, the use of the grain drill is out of the question; but the small machines for depositing the seeds of root crops would be available even there, or the manual operation can as readily be adopted in the system of parallel—if not straight—lines, as in the case of potatoes; and the acknowledged benefit arising from cultivation, whether of hoe or plough, affords evidence of the advantages to be derived from that source, and which the line and interval system facilitates to the utmost extent.

The advantages attending this mode of operation in the culture of grain crops are more evident on land which has been longer under cultivation and consequently presenting fewer obstacles to the use of machinery, and consist, in demanding and obtaining a good state of tilth in the soil to enable the machine to perform its operations with precision on which, in a great measure, success depends; and as we well know that darkness is most favourable, if not essential, to germination, a covering to the seed is indispensable, and this is most readily effected by the deposit of the seed in parallel lines, whether by ribbing, ploughing in, or the use of a drill machine; the latter by far the most efficient method, inasmuch as it deposits the seed with the utmost precision, and regulating both at proper distances and at a uniform depth, thus ensuring an equal germination and subsequent growth; again, the great facility

afforded, by a regular interval, for a thorough weeding of such plants as are essentially prejudicial to the growing crop, is one of the prominent advantages of the drill system. Our friend Mr. Black has adverted to the mischief ensuing to a grain crop where those especial plagues to the farmer—the Canada thistle and charlock or wild mustard abound; to eradicate which, under the broadest system, is in fact to sacrifice the crop, as the destruction of the one is accompanied by the annihilation of the other; this, the drill or row system obviates to the greatest possible extent by enabling us to remove the vile intruders at the least danger to the cultivated crop, and at a less expense of time and labour than by any other system. But these advantages are not all which *machine* drilling affords, as a great saving of seed is effected to the amount of fully one-third; and this is to be considered independent of the mere question of expense, for if *two* grains are sufficient for a given space, the third is not merely superfluous but positively injurious.

The question of expense seems satisfactorily set at rest by the testimony of Mr. Black and others, who, taking into account the efficiency with which the work is performed—no waste being possible—an actual saving of the cost of one-third of the seed and assurance amounting nearly to a certainty of a successful issue, so far as human ingenuity and well directed skill can set defiance to adverse influences. These advantages of the labour saved, lessened expense and clean land, counterbalance any loss of time occasioned by a rather less speedy mode of depositing the seed than that offered by the old broadcast system;—taking all these things into consideration I am, Sir, most decidedly in favour of drill husbandry for all crops wherever practicable.

(To be concluded in our next.)

WHAT IS CAPITAL?

We have rarely seen the commoner class of fallacies in vogue with particular reasoners on the subject of capital, and the influence exercised by its growth upon the progress of a community, so neatly disposed of as in the subjoined extract. It is from a lecture, the whole of which is admirably reasoned, and well worthy of careful perusal, delivered by Mr. G. R. Porter to the members of the Literary and Scientific Association of Wadsworth, England.

A very few words will suffice to explain what is meant by the word Capital. With many persons the term is synonymous with money or its substitutes, and is limited to that one object, a notion for which it is difficult to account, since it must be evident to every one, that in parting with money for the purchase of anything having value in exchange, we do not divest ourselves of capital, but simply change its form; a house, a ship, a ton of sugar, represent, and are, capital, as much as coined money, or notes of the Bank of England. Capital, in its chief designation, is saved labor, the result of some service which has previously been rendered to others, and which entitles the performer of that service

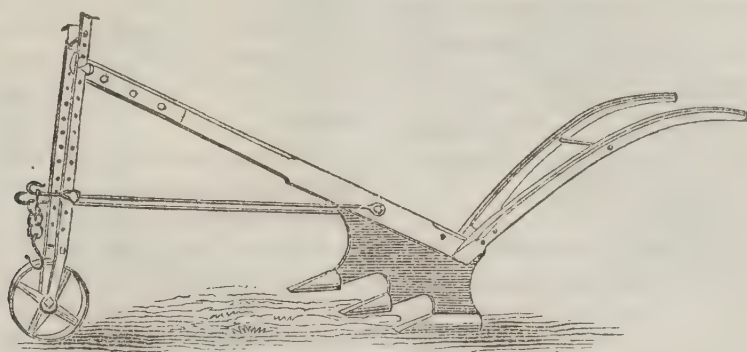
to command at pleasure an equivalent service from others. Money is of the greatest use in simplifying the operations implied in this description, and which are of this nature. John has performed a service to William, which entitles him to demand an equivalent service in return. For example, he had given a day's labor, and has thus acquired the right to claim a day's labor in return; but he has no need of the kind of labor which William can render, and he takes from him, as its equivalent, a sum of money which will enable him to purchase an equal value or service from another, and this money he may exchange for food, or for any other needed object of consumption. If the operations of society were limited to such transactions, there could be no accumulation of capital. Let us, then, assume that John gives six days services, and obtains the means for commanding the labour of an equal portion of time from others, but that he uses or consumes only the equivalent for four days' labour. He thus becomes a capitalist, and possesses saved labour to the value of two days' services. The simple operation thus described is the groundwork or origin of all capital. In the progress of society there is an apparent departure from this simplicity, and it is then often seen that accumulations of capital are made by men who never perform a day's labour, but who accumulate by putting by a part of the revenue derived from property, which is never the produce of services previously performed by themselves, or by others from whom such property has been inherited. It will easily be seen, that the revenue thus derived is of the same nature with the return made for active services. If I lend money to a tradesman, and by that means enable him to turn his exertions to a better account; I certainly perform towards him a service which entitles me to a share of such extra benefit. Or, if I employ my capital in building a house which that tradesman inhabits, it is the same thing as if I advanced the money needful for his building the house himself; he remains with his own capital in hand, instead of having to invest it in bricks and mortar, and thus am I equally entitled to a share in the profits of that capital, which profits could have had no existence but for the service I have rendered to him in building his dwelling. Capital is in such manner employed in rendering services to others, whenever its possessor is so enabled to draw from it a revenue or means of subsistence. If I use my capital in constructing and furnishing a house for my own residence, it cannot be said that such occupancy renders any service to another, and consequently I cannot draw any revenue from such property.

From this simple statement it will be evident that the more capital there is in a community, the greater amount of services will be performed, and, consequently, the greater will be the amount of comfort and happiness diffused among its inhabitants. Even in the case just cited, of a man's occupying his own house, he performs a service to himself, and, as he is a member of the community, he thus adds to the sum of the general enjoyment, paying himself for the use of his saved labor by means of such enjoyment, and


avoiding the necessity, which would otherwise exist, for rendering an equivalent service to another capitalist whose house he would inhabit.

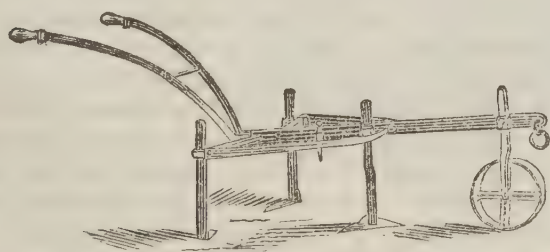
Capital is never designedly left unemployed, and, consequently, is always actively useful in promoting the good of mankind, by which means alone can its possessor draw from it any real advantage. All classes are in some degree or other

benefitted through its accumulation, but chiefly those who depend wholly or partially upon their exertions for the means of subsistence, and whose services are more liberally requited where capital abounds than in countries where it is deficient, that is, where the fund out of which services must be requited is small in comparison with the number whose means of subsistence depend upon such requital.



SUBSOIL PLOUGH.

The great utility of the Subsoil Plough, particularly on hard heavy soils, long subjected to frequent cropping, has been fully tested by an extensive and varied experience. The above engraving represents a plough that has gained great favor and been largely used for this purpose, in England. The principle of this plough has been sufficiently tested to warrant the conclusion that it is a very superior and efficient implement; its mechanical construction is simple, and renders it full 20 per cent (by experiment) lighter than the single share plough when working deep, and about ten per cent when working shallow. Each share preceding its follower, lessens its work by breaking up the upper crust of the soil, and the lowest share (which can be shaped as a  or O) leaves an arched drain to carry away the top water to the main drains. Four horses will work it in ordinary soil 18 or 20 inches deep. The price is £4 sterling.



HORSE HOE.

This is another English implement, and forms a useful and convenient variety of this numerous class. The accompanying cut represents one constructed of wrought iron, expanding from the beam, and having three share hoes, admirably adapted for cutting up the roots of weeds and stirring the soil to a moderate depth. It can be worked by a light single horse. Price £2 5s. sterling.

CHARACTERISTICS OF THE CAPE HORSE.—

Generally speaking, a regular Cape horse (one whose pedigree cannot be traced to any imported stallion,) is an ugly brute. He is about fourteen hands high, and his chief characteristics are, a low, narrow shoulder, an eye-neck, and a goose-rump. His "pins" are generally pretty good. He is villanously broken; his mouth is as tough as an oak; his pace is a shuffling, tripping, wriggling, abomination, between an amble and a canter, with a suspicion of a "run" in it. Put him beyond this pace, and he gallops awkwardly as a cow. As for walking he is innocent of the pace beyond three miles an hour. Trotting neither he, nor his breaker, nor breeder, nor owner (if a Dutchman,) ever heard of. He is apt to be ill-tempered too, often given to kicking, and occasionally to bucking. So much for his evil qualities. His good points are numerous. He is the hardiest of his race. You may feed him on nothing but grass all the year round, and yet ride him 120 miles in two days, and he will show no signs of distress. You may dismount at any place, or even in the open country, drop his rein over his head, and he will stand as long as you may please in waiting for you. You may generally shoot from his back without him flinching. You need never trouble yourself about a stable or a groom for him; he is quite unaccustomed to such luxuries. You may go to sleep as you ride him, for his ugly, awkward-looking pace is the gentlest and easiest of motions, and will scarcely disturb your slightest slumbers. Lastly, you need not fear colds, coughs or any of the ills that horse-flesh is heir to. He is never afflicted with any disease save one, and that is deadly and incurable. It is called the "horse-sickness." It is not exactly glanders, but is more like the violent attack of influenza than anything else. It is a perfect curse to the country, for its remedy has never been discovered, and its cause is in the highest degree doubtful.—*The Cape and the Kaffirs.*

MR. VAIL'S IMPORTED HEIFER "YARM LASS."

To the Editor of the Canadian Agriculturist.

MR. EDITOR,—Allow me to hand you the pedigree of one of the two Short-horn heifers, which I ordered in July last, from Mr. Bell, the friend and tenant of the late Thomas Bates, Esq., of Kirkleavington, Yorkshire, England. The directions given to Mr. Bell were, to send me two two-year old heifers in calf, possessing as much of the Duchess tribe blood as he had in his herd, well knowing as I did, from a long previous correspondence with these gentlemen, that Mr. Bell's stock was derived from Mr. Bates' herd; and that Mr. Bell's cows were bred to the Duchess bulls of the former Gentleman.

The two heifers were shipped from London on the 21st of August, on board the packet ship London, and arrived in New York, 17th of Sept. last. How well the order was executed, will be seen by the pedigree of the heifer whose portrait is here given. The heifers are both a favourite colour, a dark red roan, possessing in a high degree, the characteristic of the Bates herd, as delineated in an article written by JOHN EWART, Esq., land surveyor, Newcastle-upon-Tyne, and published in the London "Farmer's Magazine," June 1st., 1850, after the sale. Mr. Ewart remarks, speaking of this herd—"magnificent size, straight and broad backs, arched and well spread ribs, wide bosoms, snug shoulders, clean and light feet, small head, prominent and bright but placid eye, were the features of usefulness beauty which distinguished this herd in the very highest degree; whilst the hide is sufficiently thick to indicate an excellent constitution, its elasticity, when felt between the fingers and thumb, and its floating under the hand upon the cellular texture beneath, together with the soft and furry texture of the coat, evinced in an extraordinary degree throughout the herd, excellent quality of flesh, and a disposition to rapid taking on of fat."

Pedigree of the above heifer, "Yarm Lass." Calved 8th Jan., 1849—got by the Duchess bull, 4th Duke of York (10167)—the dam of this bull is Duchess 51st., and this 4th Duke of York, was purchased at the late sale of Mr. Bates' herd by Earl Ducie at £210 sterling, about \$932, and is spoken of in the same articles above quoted from the "Farmer's Magazine," in the following language—"This animal now the property of Earl Ducie, is the *beau ideal* of bovine excellence; his magnificent size, and perfection in every point of excellence entitle him to consideration, as the brightest gem of the herd; and if not the very best dull bull in existence, he certainly cannot be surpassed." The editor of the Magazine, in an appended note, remarks—"As a proof of this, and what may be expected from

his produce, we beg to observe, that the only three calves got by him, realised the sum of £279 1s. sterling," being equal to \$561 each. (It may be well here to state that "Yarm Lass," is now in calf by the Duchess bull 5th Duke of York, and that he is an own brother to the 4th Duke of York above alluded to, and her time of calving about the middle of the present January.) The dam of "Yarm Lass," is Dinah 2nd, got by 4th Duke of Northumberland (3649)—grand dam Dinah, by 2nd Earl of Darlington (1945) also bred by Mr. Bates—great grand dam Red Thompson, bought of Mr. Bates. By this pedigree it will be seen that the present product of "Yarm Lass" will have three crosses of the Duchess bulls, which will make it seven-eighths Duchess bull blood.

It may not be uninteresting to such of your readers as take an interest in breeding stock, to show how long it may take to breed up a herd of females of a particular family of stock. I may therefore be allowed to remark, that my first importation from Mr. Bates, was in 1840, when I received bull Duke of Wellington and heifer Duchess. Since then I have had from him and Mr. Bell, at different times [including the two recently imported,] five females, and all the females from them I have retained in my herd except two, having now in my herd of this family eight in all. All of these are in breeding condition, except one. It has been my aim to make my herd to consist eventually, principally of this strain of blood.

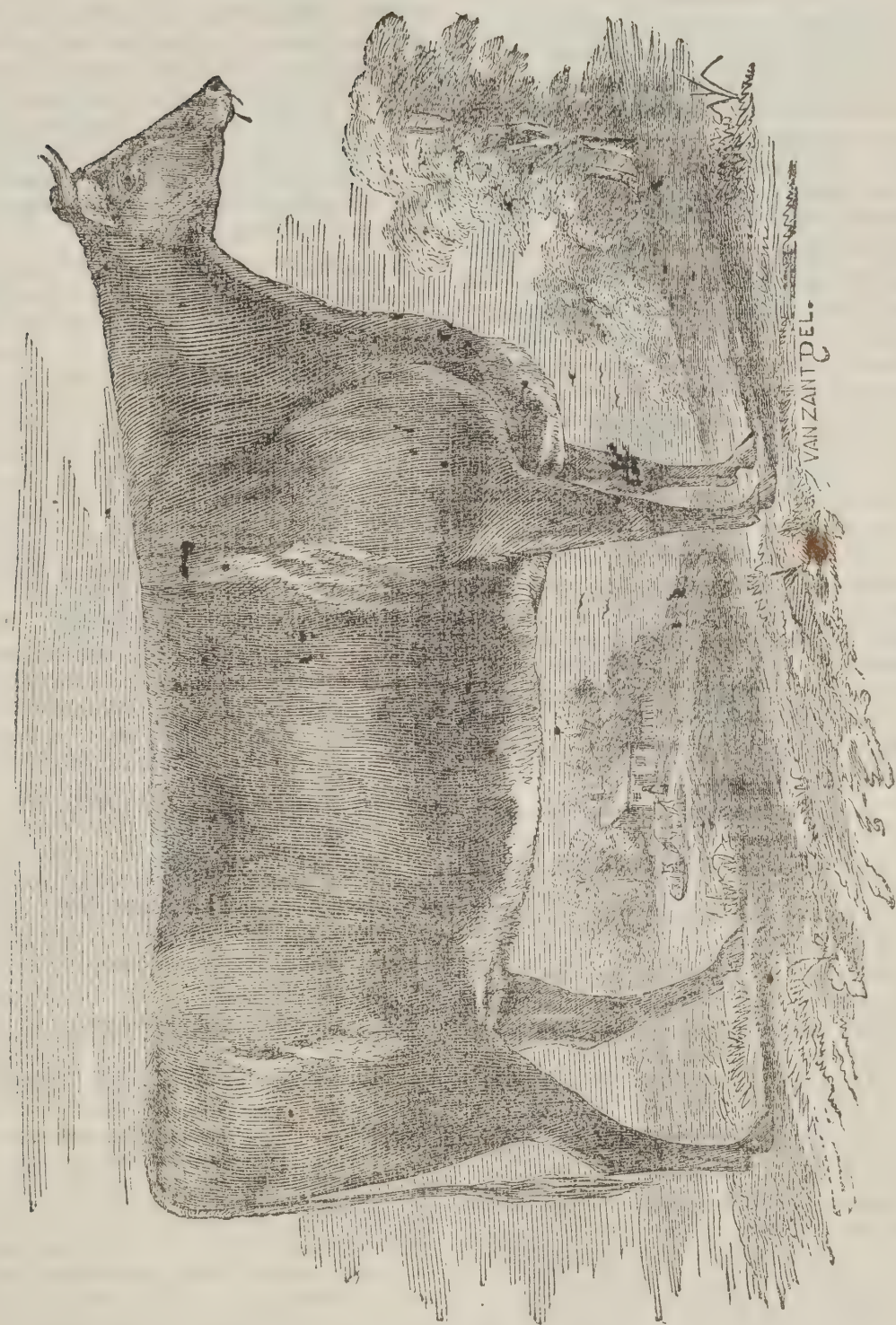
The young bulls bred from these cows, I have disposed of, with the exception of such as I needed for my herd, and I am gratified to learn from their owners that they have done much good where they have gone. Among those sold was "Halton," when a calf not over a month old, to the Hon. Adam Fergusson, and his friend the late Mr. Wetenhall, of Upper Canada, for \$300. This bull, now over four year sold, Mr. Fergusson used to his herd three years, and for the reason that he could not breed him to his own heifers, he brought him to our state show at Rochester last September, to exhibit as *foreign stock*, and for sale. This bull's appearance then, you are aware, attracted much admiration; he was awarded the 1st premium in the class of foreign stock, and was sold shortly after his appearance on the ground at \$300, to Mr. S. P. Chapman, of Madison County. In a letter I received from the Hon. Adam Fergusson, dated November 12, 1851, in speaking of the bull Halton, he remarks—"He has made a most important change on my herd for the better. I am truly happy to find you are still importing. I must have another bull calf, and put myself in your hands to provide me."

My herd now consists of about thirty head, young and old. I beg you to excuse the liberty I have taken in this lengthy communication, and I hope it may be of some interest to some of your numerous readers. Truly and respectfully yours, &c. &c.,

GEO. VAIL.

Troy, New York, April, 1852.

N. B.—On the 18th January, Yarm Lass dropped a beautiful roan bull calf.



HORTICULTURE,

THE SCIENCE AND PRINCIPLES OF GARDENING.

NO. V.

THE AGENTS WHICH AFFECT PLANTS.

8.—MANURES.

There is no branch of plant-culture in which a more thorough change has been effected of late years than in the application of manures. The old fashioned, substantial, simple manures have now very much given way before the use of such as are highly concentrated, or are compounded chemically, or are administered in a liquid state, or contain some single ingredient which the particular crop to be grown, appears, most to require.

Two or three very important results have followed from this alteration in the system of manuring. First, the new kinds of manure are generally of easy application. They travel in a small compass, and may often be put on by the hand. A great deal of the wheeling or carting is thus saved. Secondly they frequently have the ammonia which they contain so fixed by acids as to occasion a prodigious saving of this most effective element, and to avoid altogether the disagreeable and noxious odours common to the older manures. Thirdly, they are sometimes made to contain or combine the element or elements on which particular crops almost entirely feed; the researches of chemistry having laid bare, to some extent, the constituents of many plants, and their consequent requirements. These are all properties of the highest interest and the greatest value.

But there remains another view of the case, which it will not be wise to neglect. Artificial manures seldom act mechanically on the soil.—They do not improve its texture. Nor does their influence often last long. It is transient, and extends but to one or two crops. They cause little or no additions to the soil. The available parts for cultivation do not acquire any extra substance or depth by their use. They are likewise too stimulating for some crops especially permanent ones, and occasion extravagant growth, without corresponding fertility. On all these points, therefore, the commonest manures must be deemed yet in advance of those more recently devised.

On the whole, it will be well to adopt such new manures as have been ascertained to be good (though there are numbers that are perfectly worthless,) as a general rule, for temporary crops; with the occasional use of the more solid kinds, and the selection of these last alone for fruit trees and more lasting crops.

From the excrements of various animals, mixed with partially decayed vegetable matter, such as straw, the best possible manure may be obtained. Sheep dung and that from birds are among the most powerful, and may be applied simply without any admixture. Horse, cow, and any other manure will be improved by mixing them with vegetable substances, and fermenting

and turning them several times before using.—The addition of a little lime will render them more thoroughly and more immediately efficacious. They should be covered up with earth while fermenting, the less of the ammonia which they contain may be lost.

Guano is the dung of birds, obtained from those portions of sea-coast, whether in South America or Africa, where particular species abound and congregate, and where the dung has been deposited and accumulating for ages. It is, when obtained pure, an excellent but expensive manure for a single crop, and may be applied broadcast at the time of putting in the crop, or sown along the drills with the seeds or sets, or put on just as the crop is coming through the ground. The last is generally the most economical process and the ground should be hoed over a few days after it is finished.

Bone dust is one of the best manures for firm soils, that are not deficient in depth, and it has the merit of being clean and readily applied. It also lasts a considerable time. Crushed bones which are in larger pieces, will be even more durable, and are very effective in facilitating drainage.

Liquid manures are exceedingly useful on a small scale, and especially pot-culture. They may consist of urine largely diluted, or the soaking of a dung-hill less freely reduced, or a mixture of a good handful of guano with a couple of gallons of water, or any of the same processes extended to the required quantity. They can be applied safely to growing crops, and will produce a speedier and a more marked effect than other manures, because the nutritive matter is already in a state of solution. A great deal may be done in this way in small gardens.

More artificial manures will contain, generally, some solution of the alkalies (soda, pot-ash or ammonia,) saturating any neutral substance, to render them of convenient application; or they may be of a more compound nature. As a rule, these three elements, being those upon which plants are more largely nourished, will form the most certain bases for manures.

The properties of manuring are to stimulate and excite the system of plants into stronger and more luxuriant growth, and, in general, if but moderately employed, to increase their productiveness. Great caution is, however, necessary in adapting the quantity and quality to the condition of the ground, or the plants, and to the objects sought to be obtained. Manures are not usually conducive to a freely flowering condition unless the soil be very poor indeed, or the plant be much cramped and impoverished in a small pot, and liquid manure will then be most appropriate. Fruit trees usually require manuring but it will depend much on their individual habits and character. The more highly cultivated the state of any plant, or the more each particular variety owes its perfection to the highest culture, the more likely it is, in the abstract, to want frequent and liberal manuring. Such are some of the finest vegetables and fruits, and the more richly developed among florists' flowers.—*Kemps' Principles of Gardening.*

GLASS COVERING FOR WALLS.

We noticed in our last number that glass was about being tried in England for constructing garden walls, and the probability that it would be found both ornamental and more suitable for many purposes than the material ordinarily employed. A writer in a recent number of the *Gardeners' and Farmers' Journal*, says that he has about 1200 feet of garden wall planted with peaches, apricots and figs, and that he intends covering them with glass. The trees are to be trained $2\frac{1}{2}$ inches from the wall to strong wire, and sufficient space left between the wall and the top and side glass sashes for ample ventilation. Now that the excise duty has been taken off glass, it will no doubt be more extensively used for horticultural and domestic purposes. Water pipes, we hear, made of this material, are already coming into use.

DANGEROUS GARDENING.—The most deadly plant ever possessed by Kew, the *jatropha urens*, is no longer to be found there; it has either been killed off like a mad dog, or starved to death in isolation like a leper. Its possession nearly cost one valuable life, that of Mr. Smith, the present respected curator. Some five and twenty years ago, he was reaching over the *jatropha* when its fine bristling stings touched his wrist. The first sensation was a numbness of the lips; the action of the poison was on the heart, circulation was stopped, and Mr. Smith soon fell unconscious, the last thing he remembered being cries of "Run for the doctor." Either the doctor was skilful, or the dose of poison injected not quite, though nearly enough; but afterwards, the man in whose house it was got shoved it up in a corner, and would not come within arms length of it; he watered the diabolical plant with a pot having an indefinitely long spout. If the vase itself contained a *quid pro quo* he is not to be greatly blamed. Another not much less fearful species of *jatropha* has appeared at Kew, and disappeared.—*Quarterly Review*, Dec. 1851.

THE BEST APPLES;—A winter exhibition of fruits was held at Rochester, and several very fine collections of apples and fine and rare winter pears were presented. When the exhibition was about to close, and while some twenty of the most successful and intelligent cultivators yet remained in the room, it was proposed to call a vote for the best winter table apple (not for marketing,) its agreeable qualities being the chief consideration. The vote was entirely informal, and the following was the result. The large voice for the Melon was probably owing to the fact that some fine specimens, then in perfection, had just been distributed:

Melon, 5 votes, for winter fruit.

Swaar, 3 " "

Red Canada, 2 " "

Baldwin, 2 " "

Northern Spy, 3 votes for long winter.

—*Albany Cultivator*.

THINNESS OF A SOAP-BUBBLE.—A soap-bubble, as it floats in the light of the sun, reflects to the eye an endless variety of the most gorgeous tints of color. Newton shows to each of these tints correspond a certain thickness of the substance forming the bubble; in fact, he showed in general, that all transparent substance, when reduced to a certain degree of tenuity, would

reflect these colors. Near the highest point of the bubble just before it bursts, is always observed a spot which reflects no color, and appears black. Newton showed that the thickness of the bubble at this black point was the 2 500,000th part of an inch! Now, as the bubble at this point possesses the properties of water as essentially as does the Atlantic Ocean, it follows that the ultimate molecules forming water must have less dimensions than this thickness.—*Lardner's Handbook*.

MICE AND REPTILES.—In an English work, called, "The Life of a Soldier," we find the following account of battles between mice, scorpions, and centipedes in Barbadoes. The brief narrative is full of interest: In clearing the ground for the camp, we disturbed a variety of noxious reptiles such as whipsnakes often extraordinary length, but not thicker than a goose quill: centipedes of a large size, whose backs were plated like a lobster's tail; and scorpions. Having heard that mice were natural enemies to the two latter, I procured a few, that I might be a witness of their combat. The arena was the space circumscribed by a glass bell; and upon letting a mouse and scorpion loose in it, a grand display of manœuvring ensued—the mouse flying to bite off his opponent's tail, which terminates in a sting, and the scorpion watching for an opportunity to strike him with it. Should the former succeed in his first object, the latter falls an easy prey; but stung, the mouse is generally the victor. Equal generalship is required in the engagement with the centipede, which defends itself with two small nippers, placed at either side of its mouth, near the poison bags. One of our men found a large tarantula on his shoulder one morning when he awoke, and it suffered itself to be removed without doing him any injury. He brought it to me, as an amateur; and accordingly I placed it under the bell with one of my hardest bitten mice. It immediately reared itself on its hinder part, and extended its long arms, remained motionless in this posture, while the mouse ran round the bell, evidently unwilling to face its new antagonist. This continued a short time; and then, as if under the influence of an irresistible fascination, the mouse jumped suddenly into the arms of the tarantula, which quickly seized him with two nippers, resembling the claws of a cat, and situated at either side of the head, and with such deadly effect, that the little quadruped instantly swelled up and burst. I next let loose two or three mice at a time on the tarantula, but they all shared the same fate.

ANECDOTES OF HORSES.—In the reign of James I. races were established in many parts of the kingdom; and the races was then called bell-courses, the prize being a silver bell, whence the expression to bear off the bell! In the reign of Charles I. races were held in Hyde Park and at Newmarket, and Charles II. most warmly patronised them, entering horses, at Newmarket in his own name; and about this time the bells were converted into cups, or other species of plate, valued at one hundred guineas each. In those earlier days professional jockeys were unknown, but it is curious to hear the opinion of a celebrated writer and distinguished man, Lord Herbert of Cherbury, "The exercise," says he, "I do not approve of, is running of horses, there being much cheating in that kind. Neither do I see why a brave man should delight in a creature whose chief use is to help him to run away!" Lord Herbert might have been a great philosopher, but he certainly would not have been qualified to be a member of the Jockey Club. Cromwell who had himself trained the finest regiment of cavalry then in existence, was aware of the importance of speed and bottom, and Charles II. obtained a large number of mares and stallions from the Levant, so that the Arabian blood was freely mingled with the native breed.—*Bentley for March*.

SCIENTIFIC.

REPLY TO MR. SOTHAM'S INQUIRIES.

Mr. Editor:—In compliance with your request to assist you in answering some of the inquiries of your thoroughly practical correspondent Mr. Sotham, I will now proceed to make a few remarks on some of the questions proposed, premising that I only intend answering those to which a satisfactory reply can be given without having recourse to any of those hypothetical assumptions to which Mr. Sotham so strongly and so properly objects.

I will not make any remarks on Mr. Sotham's tirade against science and its cultivators; firstly, because I happen to be one myself; and, secondly, because there is a great deal of truth in Mr. Sotham's assertions, although perhaps they are carried a little too far. If we find that certain chemists or philosophers have been led away by some of their own theories, and have thus promulgated errors which become palpable when put to the test of practice, we must not thence conclude that science is useless as applied to Agriculture, any more than when employed in those numerous arts and manufactures which of late years have been thereby so materially improved. The very fact of such questions being proposed by so excellent an Agriculturist as Mr. Sotham, is sufficient proof of the value of a little science.

Barn yard manure is one of the best if not the very best of all manures for general use, inasmuch as it restores to the soil exactly those substances which have been taken from it—at least to a very great extent. The straw, hay and other vegetable matters which abound in it, will of course restore to the fields exactly those bodies which were removed from them during the growth of the crops, while the excrements of the horses and cattle contain that portion of the same substances which escaped assimilation during their passage through the intestines. A considerable quantity of those bodies called by chemists nitrogenized compounds, is to be found both in the litter and the excrements; and these compounds, soon undergoing fermentation or decomposition, give off among other substances a pungent gas called ammonia: this evaporates into the atmosphere, and, although there are other bodies which also escape, this one is by far the most important, and the one which the practical farmer should most zealously endeavor to retain. This substance, and more especially its combinations, are frequent in guano, night soil, hen manure, &c., &c.; and, as Mr. Sotham justly observes, they must be weakened by admixture of other substances, such as plaster, moulds, &c.;—lime [burnt lime], however, must be carefully avoided, as it possesses the power of

destroying the compounds of ammonia by driving this latter substance out of the mixture in which it may have been contained.

Ammonia [which of itself has a pungent but not disagreeable smell, but is powerfully so when mixt or combined with certain other matters] must be considered as a powerful fertilizer, and it is pretty generally allowed at the present time that many manures owe their chief value to the presence of this substance. It should therefore be retained in the manure heaps by all possible means, among which may be mentioned the use of plaster, clay, charcoal or dilute acids. Fresh urine contains very little ammonia, but a large quantity of certain substances which yield it by their decomposition. These substances, if directly applied to plants, will act as poisons, whether from properties inherent in them, or from their being used in too great quantities; but if the urine be mixed with the soil at a distance, it rapidly undergoes decomposition, ammonia or its salts are formed, they are dissolved by the water contained in the soil, and can now be taken up by the roots of plants not only with impunity, but also with essential benefit.

In answer to the question contained in the last paragraph, I would reply that ammonia is absorbed by charcoal, clay and other mineral substances, in large quantities. The ammonia evolved from decomposing animal or vegetable substances, is generally combined with carbonic acid, forming what is called carbonate of ammonia, and this compound would also be absorbed and partially retained by the above mentioned bodies as well as by gypsum. Their fertilizing powers will thus be increased, for not only will they afford to the plants those substances which they previously contained, such as lime, sulphuric acid, &c., &c., but also the ammonia or its salts which, as already mentioned, are so essential to the vigorous growth of almost all vegetables. Charcoal possesses the property of absorbing an enormous amount of this gas, and it is very probable that the beneficial effect of charcoal in promoting and assisting vegetation is owing to this circumstance, joined perhaps to its great porosity.

Ammonia does not cause the decomposition of green crops when ploughed in, but it is a result of their decomposition, although not formed in such large quantities as from excrements or putrifying urine.

I am scarcely vain enough, Mr. Editor, to hope that the above answers which have been written very hurriedly, will be perfectly satisfactory to your correspondent; but, if not, I may perhaps have an opportunity of explaining myself more fully at some future time.

Yours, &c., H. CROFT.

University, Toronto, April, 1852.

ADVANTAGES OF STUDYING THE NATURAL SCIENCES.

The superiority of the natural sciences over all other objects of study, to engage the attention, and awaken the interest of pupils, is conceded as a fact of experience by the ablest teachers. This cannot be otherwise; for the infinite wisdom of the Creator is nowhere so perfectly displayed as in the wonderful adaptation which exists between the young unperverted mind and the natural world with which it is encompassed.

On one hand there is the realm of nature, endless in the variety of its objects, indescribable in its beauty, immutable in its order, boundless in its beneficence, and ever admirable in the simplicity and harmony of its laws; on the other there is a young intellect whose earliest trait is curiosity, which asks numberless questions, pries into the reason of things, and seeks to find out their causes as if by the spontaneous promptings of instinct. The study of nature is therefore the most congenial employment of the opening mind, and one of its purest sources of pleasure. Every fact that is learned becomes a key to others; every progressive step discloses wonders previously unimagined. The more we acquire, the greater is our desire to learn, while each advance multiplies the sources of delight instead of exhausting them.

But the advantages of studying the natural sciences are by no means confined to the interest or enthusiasm which they are capable of exerting. They are also eminently fitted to train the mind to habits of careful observation; to teach it discrimination in deciding upon evidence, caution in forming opinions, method in study; to discipline it to patient and persevering effort, and store it with valuable knowledge;—and yet, in our current systems of instruction, how frequently is the mind cut off from the glorious works of Almighty power, and directed to the crude and imperfect performances of man! how often does the bright volume of the Creator, “written,” to use the impressive words of Lord Bacon, “in the only language which hath gone forth to the ends of the world unaffected by the confusions of Babel,” remain a sealed book, while the youthful mind is inflated with fictitious learning, or occupied in acquiring the least valuable kinds of information! It is not to be forgotten, that so long as men neglected the study of nature, despised experiment, resorted to fanciful theories for the explanations of all natural occurrences, and wasted their energies in aimless and sterile speculations, society remained in a condition of barbarism, and learning was only an empty boast—a something of which the great mass of mankind knew absolutely nothing, and which was of little service to those who possessed it. But when at length men became the students of nature, when they began to appreciate the significance of her facts and to search for them with earnestness, then came the knowledge which put stagnant society in motion, which conferred power upon the masses to elevate and improve their condition. Then came the discovery of the New World, of the art of printing, of the telescope,

the microscope, the steam-engine, the chronometer, the power-loom, the steamboat, the locomotive, the electric telegraph, the daguerreotype, and ten thousand other inventions in all the departments of human activity,—and which constitute but the beginning of what yet remains to be done. The benign results which thus flow from the study of the natural sciences, are in an eminent degree characteristic of Chemistry. Its principles are of universal import, of the utmost breadth of practical application, and are involved in all the vicissitudes of being which we daily contemplate around us. And in acquainting ourselves with them, we may not only gain a deeper and clearer insight into the wonders of existence, but we shall likewise obtain the most striking proofs of the wisdom of the Great Maker of the Universe.—*Youman's Chemistry.*

THE WONDERFUL PROVISION OF NATURE.—Although eels notwithstanding their voracity, are not, perhaps, very destructive to salmon in their active state, their habits are such, that they would exterminate the species, were it not for a very wonderful provision of nature, which as we do not remember ever to have seen it dwelt upon or alluded to, it may be worthwhile to notice it passing. The history of their spawning is the converse of that of the salmon's, for whilst the latter is oviparous, and produces in fresh water, the former is viviparous, and produces in the sea; and it so happens that when the salmon is hurrying up towards the very sources, of rivers on the same errand of generation, the eel is hurrying on the same errand to the depths of the ocean. Were the eel to remain in the river after the salmon roe is deposited and covered in, its voracity and habit of boring in loose gravel, and even under large stones, would disturb the beds, and lead to the annihilation of the whole salmon tribe. But at this critical time the two creatures are driven by the same instinct, towards different poles; and before the eel re-appears in fresh water, the salmon roe has undergone a series of changes, emerged from its subaqueous dormitory, and becomes a little fish, fragile indeed, and tiny, but in the highest degree vigilant and nimble, not capable of confronting a single one of its numerous enemies in the open field, yet disconcerting and defying them all by the celerity of its flight. Is this an evidence of design, or is it a stroke of chance?—*Thoughts on the present scarcity of Salmon*; by the Rev. Dugald S. Williamson, Minister of Tongland.

GIGANTIC EGGS.—The committee of management of the Jardin des Plantes de Paris have just presented to the Hunterian Museum, of the Royal College of Surgeons, the casts of eggs of the gigantic wingless bird of Madagascar (*Eproyornis maximus* of Geoffroy de St. Hilaire). These enormous eggs are equal in size to 12 ostrich, 16 casowary, 148 domestic hen's or 50,000 humming bird's eggs.

TUB HOUSES.—A patent has been granted to Mr. George Tate for the construction of houses and other buildings by fitting together staves, or other pieces of timber, secured together by hoops or binders, and fixed by any suitable method practised by builders, either vertically or horizontally, at any height, upon piles, sleepers or frames, securely fastened in the ground; the joints of the pieces or staves, when necessary being bevilled as required, and wrought either plain or rounded, and hollowed or dove-tailed, or tongued and grooved, or glued up or caulked, or merely drawn

close together by the hoops. The patentee sets forth, that the object of his invention is to afford the working classes "cheaper and better accommodation than heretofore," and doubtless he is able to point to circumstances under which the proposed arrangement would be found useful. For our own part, however, we have no desire to see the exclusive right of dwelling in a tub, long possessed by Diogenes, interfered with, and would rather aid in obtaining for the working classes habitations of a more durable and a less combustible nature.—*The Builder.*

A curious experiment, demonstrating the protective quality of gutta percha against the escape of the electric fluid, was tried on the premises of the London Gutta Percha Company. A series of copper wires, coated with gutta percha, each wire 1000 feet long, and in the aggregate amounting to 275 miles, was immersed in the water of the Regent's Canal—all, except the parts where each wire joined its fellow. The juncture was effected by mere twisted contact a condition very unfavourable to the ready transmission of the fluid—and the voltaic battery employed in passing the discharge was on the old construction of Dr. Wollaston, consisting of 384 pairs of 4 inch square plates of copper and zinc, put in action by diluted sulphuric acid. On completing the voltaic circuit, the explosion was instantaneous, notwithstanding the wires had been immersed in water ever since the 18th of January. By employing a stronger battery, it is difficult to say what would be the limit of the electrical ignition. The usual plan of inflaming gunpowder, by means of voltaic electricity, consists in making the fluid traverse a slender platinum wire, which thereby is rendered incandescent—a plan which certainly would not have been effective at so long a distance as 275 miles, with the battery employed. Probably it would have been impossible with any battery. The plan actually followed was discovered by Mr. Statham, the chemist at the gutta percha works, and consists in passing the voltaic discharge through a small layer of the salt (probably sulphuret of copper,) which forms when copper is brought into contact with sulphurised gutta percha.

INTELLECT DEVELOPED BY LABOUR.—Are labour and self-culture irreconcilable to each other? In the first place, we have seen that a man in the midst of labour, may and ought to give himself to the most important improvements, that he may cultivate his sense of justice, his benevolence, and the desire of perfection. Toil is the school for these high principles; and we have here a strong presumption that, in other respects, it does not necessarily blight the soul. Next, we have seen that the most fruitful sources of truth and wisdom are not books, precious as they are, but experience and observation; and these belong to all conditions. It is another important consideration, that almost all labor demands intellectual activity, and is best carried on by those who invigorate their minds; so that the two interests, toil and self-culture, are friends to each other. It is mind, after all, which does the work of the world, so that the more there is of mind, the more work will be accomplished. A man, in proportion as he is intelligent, makes a given force accomplish a greater task; makes skill take the place of muscle, and with less labour gives a better product. Make men intelligent and they become inventive; they find shorter processes. Their knowledge of nature helps them to turn its laws to account, to understand the substances on which they work, and to seize on useful hints, which experience continually furnishes. It is among workmen that some of the most useful machines have been contrived. Spread

education, and as the history of this country shows, there will be no bounds to useful invention.—*Channing.*

THE SEASONS.

(Written for the *Irish Farmers' Gazette.*)

The spring time is coming, the spring time is coming;
The young buds are starting, the bees are yet humming;

The daisies and cowslips in beauty are springing,
And the lark and the linnet in chorus are singing:
The meadows are tinged with a beautiful green,
And verdure springs up where old winter had been;
The plough in the soil is now rapidly rolling,
And the joybells of plenty in triumph are tolling.

The summer is coming, the summer is nigh,
And the breeze from the west scarcely utters a sigh;
The corn is green and the meadows are bare
And diffuse a sweet scent thro' the rarified air.
Oh! the summer is lovely—ay, more so than spring,
Tho' the valleys are green and the joyous birds sing;
Yet the summer to me is more lovely than those,
With a wreath on its brow of the lily and rose.

Autumn is coming, 'twill soon be in view,
And it spreads o'er the land a bright, yellowish hue;
The sickle is sharpened and sweeps all before,
Like the downfall of armies that battled of yore;
And plenty, the mother of wealth, dawns on high,
As she smiles on the scene with a bountiful eye.
How lovely is autumn! in evening how fair
Are the pearls that shine in her rich golden hair!

But winter shall come, with his snowy white gown,
And dispel those fond themes with a dark, churlish frown;

The blackbird and redbreast alone fight their way
'Gainst the clouds that have banished the sprightly and gay;

And the storms that sweep o'er the shadowy plain
Revive but to bring back the new year again.

Glasnevin, Feb. 14, 1852.

P. C.

MECHANICS' INSTITUTE SOIREE.

On Monday evening, the annual soiree of the Mechanics' Institute, given complimentary to the Lecturers of the past season, was held in the St. Lawrence Hall. The room was tastefully arranged for the occasion, and was graced by a numerous and respectable audience. At the upper end, at three short tables, elevated on a dais, were seated several of the lecturers of the past season, with a number of ladies and gentlemen—the guests of the evening. Mr. Cumberland, President of the Society, occupied the chair. The Rev. Mr. Lillie having asked a blessing, the tea, coffee, and accompaniments were served round very liberally, and after ample justice had been done, Rev. Mr. Richardson returned thanks.

The intellectual part of the entertainment was led off by the Chairman, in a long and interesting address. He referred in a brief but graphic manner to the lectures of the past season, and

then spoke at some length of the Canadian section of the Crystal palace. "To that section," he said, "stunned by the excitement of the scene, the magnificence of the structure, and the surpassing wonders of its contents,—to which, as Lord Brougham has it, "not all the words of all the languages that tongues were ere attuned to speak" can render even feeble justice,—to that section I was always happy to retire: for it was a link which united me with this Institute, and one to which I was proud to point, as illustrative in part, of its usefulness and its energy; of the skill of its members; and of their patriotic efforts to employ that skill as a lever, with which to elevate their country in the eyes of the nations. There may be times when to refrain from active effort would be to commit a positive breach of duty, and such, I think, will be the opportunity to be given us by the Exhibition of the Provincial Agricultural Association, to be held in this City, in September next. I am enabled to state, authoritatively, that the parties engaged in that enterprise are determined to make the Toronto Exhibition, eclipse, in utility and excellence, every previous effort of this sort made within the Province; and it is reasonable that we should assist them zealously in their undertaking. It is a matter of high importance that the character of Toronto should be well sustained on that occasion; and if we would secure to ourselves that position of advancement and priority which capital cities are always expected to hold, (and which we ought not to forget is actively competed for by a very ambitious and not very distant little city,) we should apply ourselves diligently to the work of preparation. In advocating the claims of the Agricultural Association to your support, I do not feel that I am straying from my duty as President of your Institute. It is a part, and a very obstinate part of my faith, that no jealousy ought to divide the Agriculturist and the Mechanic: they are, or ought to be, parallel pursuits: their interests are to a great extent, mutual—if one languishes, the other is far from safe: if one succeeds both are, or ought to be the gainers. Patriotism is the common ground to both: the national good a bond of union. Let us, then, eschew petty differences, and pull harmoniously together; and so far from entertaining a partial and envious spirit, let the Mechanic and the Farmer travel side by side, rendering each to the other brotherly aid upon the way; that so the glorious path which our country is pursuing may be one of pleasantness and peace, the pride and the hope of all good citizens. He then said in reference to the Institute itself—You will, I am sure, be glad to hear that since 1847 the number of members has nearly doubled, being now 340. Large additions have been made during the past year to the library, which now contains 1544 books, selected with great care by the Committee with a view to the direction of the taste of the junior members into channels of sound and useful knowledge. The library *alone* ought to commend the Institute to an extended support, and I would indulge in the expression of a hope that some of my fair hearers who do not intend to devote their lives to Crotchet work and Berlin wool, will permit our Librarian to supply them with a few pat-

terns of the flowers and fruits of Literature. Our reading-room,—regularly supplied with the best periodicals and journals of the day, both English and American, to the number of 34,—continues to be well attended, and is the source of much pleasure and utility to our members. The drawing-class, too, has under most able supervision, been remarkably successful; indeed there is in every department most gratifying evidence of vitality and success. [Great applause.]

Mr. Pell rose to move the following resolution:

"That the members of the Toronto Mechanics' Institute are much indebted to the Lecturers of the past season, for the very valuable assistance which they have rendered the Institute, in disseminating useful information, and in arousing a taste for the acquisition of knowledge among its members and the public generally. That, in a spirit of warm appreciation, they herewith tender to those gentlemen their hearty and united thanks."

He expressed great pleasure in supporting the resolution because he thought they should be grateful to those gentlemen who had devoted their time and talents for their benefit. He had been much edified in listening to the various lectures during the past session, and he felt satisfied that no person who had attended, will rest contented without further examination into the subjects so ably handled. He regretted, however, that the attendance of the young mechanics of the city, had not been larger. It formerly was a common saying that the best mechanics were the most dissipated, the truth of that saying he hoped was passing away, and that in future the best workmen would be the most intelligent. He felt much gratification in the attendance of so many females (applause) during the year, and only regretted that there was not a better building to which to invite them and the friends of the Institute.

MR. THOMAS,—a member of the Council of the Institute seconded the resolution.

MR. T. J. ROBERTSON, responded to it at some length. He differed from the resolution in so far—that he considered that instead of requiring thanks for their efforts, they should rather return thanks for the compliment paid them in being requested to lecture before so intelligent an audience as attended these lectures. There was so great an amount of intelligence exhibited in these audiences, that it became a difficult task for a lecturer to stand up and offer instruction to them. Mechanics Institutes had been the means of promoting general and scientific information, and they should consider it a high honor to share the labour in such a cause. Under these circumstances he felt deep gratitude to the compliment paid to him.

DR. HODDER also replied to the resolution, and suggested that in future sessions it might be advisable that two or three lecturers, similarly minded should unite together and deliver a series of lectures upon one subject in order that a more full elucidation of that subject might be given.

Rev. Professor LILLIE submitted the following resolution:—

"That the members of this Institute view with much interest and satisfaction the endeavours which are now being made to establish Mechanics' Institutes in many towns of this Province, and they desire to extend to their distant brother Mechanics their hearty good wishes for the healthy progress, and successful completion of their labours, trusting that the day is not far distant when the Institutes of this Province will be enabled to feel and know, both singly and collectively, that 'Union is Strength.'"

He eulogised the President for the honourable position he occupied. He rejoiced, and he thought that every lover of his country would rejoice, at the efforts made to extend Mechanics' Institutes through this young, rapidly growing, and very noble country, as the influence of these Institutes, when properly conducted, is pre-eminently good. He had felt, in listening to the lectures delivered, that their influence was peculiarly healthful. Of course it would be out of place to preach to a Mechanics' Institute; but he had felt it a privilege that a man who believes in the Bible, does not need to be afraid in addressing this Institute, lest he should happen to utter one word in its favour; or lest, in illustrating his subject, he should make use of any of its rich and glowing language (applause). It struck him as one of the great beauties of that beautiful lecture of Captain Lefroy, delivered at the commencement of the Session, that in the very beginning of that Lecture you saw the man. There was a distinct and broad recognition of the principles derived from Revelation. He congratulated all persons connected with the Institute upon that great privilege, not only for the sake of the Institute, but for the sake of the country. The Rev. gentleman then dilated at some length upon the benefits which this Institute was the means of conferring. He said these benefits were so numerous that it would occupy too much time to allude to them all. He, however, enumerated several; amongst which were, the honourable opportunity of enjoyment afforded, at a rate exceedingly light, whether as to the time or the expense involved—the moral benefits derived—the impulse they gave to the mind, and the mental habits they assisted in forming—the knowledge they communicated, and the pleasant and affectionate contact into which the several portions of the community were brought; and last, though not least, the opportunity which the lecturers enjoy of improving themselves while they are preparing to address so intelligent an audience. It was in fact a full corroboration of the beautiful saying of the wise King—"In all labour there is profit."

REV. MR. ROAF seconded the motion, which was then put and carried.

Professor Hind, moved the next resolution, to the effect:—

"That the members of the Toronto Mechanics' Institute hear with much satisfaction, that the annual Fair of the Provincial Agricultural Association will be held in this city during the month of September next ensuing:—That they willingly assure the Local Committee appointed to the management of the Provincial Fair, of their hearty sympathy with an Association so well adapted to foster and develop the Agricultural and manufacturing industry of this country; and they trust that in all similar expositions of Canadian industry and Art, the Agriculturalists' and the Mechanics' Hall, may ever be found side by side."

He remarked very happily on the intimate relationship existing between agriculture and mechanics, and said it was as impossible for the anvil to exist without the plough, as it was that the plough could exist without the anvil. One fact he said he might mention—not perhaps generally known, that during the last ten years two hundred and ten patents had been taken out in Canada for improvements in various contrivances in implements, and out of the 210, not fewer than 49 were for improvements in agricultural implements, independently of others, perhaps 18 or 20 relating to the construction of mills.

Mr. Henning in seconding the motion alluded to the fact, that agriculture had been a favorite science with men of accomplished tastes in all ages. An attention to husbandry was, he considered, a compliance with the designs of God himself, for the fact

that the earth produces is an intimation to cultivate it, and by making the most of his bounty, we not only estimate its value but manifest our gratitude for his paternal indulgence. It was the duty therefore of every one to encourage agricultural industry, by sympathizing with and aiding to the extent of his abilities those associations which are organized for its improvement. And it was cheering to think that in this country, both farmers and mechanics enjoy so many means of improvement in their respective sphere of action. The farmer has now his Common Schools, and a system of education, by means of which a good elementary education can be received, and in connection with them are circulating libraries, from which he can procure works upon every subject bearing upon his peculiar duties. He has too, his Mechanics' Institutes, which are multiplying throughout the land,—and he can procure works upon the more general topics with which he is called upon to become acquainted. And he has too, a Provincial University, with a chair filled by a gentleman very well qualified to teach him both the science and practice of Agriculture. Already the poetic prophecy, uttered some forty years ago, had been literally fulfilled.

On Erie's banks where tigers steal along,
And the dread Indian chants his dismal song;
Where human fiends on midnight errands walk—
And bathe in brains the murderous tomahawk,
There shall the flocks in thymy pastures stray,
And shepherds dance at summer's opening day;
Each wandering genius of the lonely glen,
Shall start to view the glittering haunts of men,
And silence watch on woodland heights around,
The village curfew as it tolls profound.

PROFESSOR BUCKLAND rose to reply, and said that whatever embarrassment he might have anticipated in speaking to the resolution, had been wholly removed by the able and appropriate remarks of the President and those of the mover and seconder of the motion; a happy circumstance which left him but little to say. He would remind the audience, however, of a few facts. It would be well to bear in mind that Toronto had given birth to the Provincial Association, the first exhibition of which took place in this city in 1846. The Society was as yet but an infant; and like most young bantlings required no small amount of attention and proper nourishment in order to attain to a healthy and vigorous manhood. It had not yet completed the term of a septennial apprenticeship, but as exercise strengthened and matured the animal frame, so the annual peregrinations of the Association among the different cities and towns studding the shores of Ontario and the majestic St. Lawrence had imparted to it a strength of purpose and a character for utility, which he believed had already won for it the support and confidence of the country. The Government of Canada he must say, had for years manifested a fostering and patriotic care of institutions of this nature, and also of others having the laudable object of diffusing a taste for art, facilitating useful mechanical inventions and spreading abroad the blessings of knowledge and education. The resolution had the happy expression "that in all our great expositions of industry, may the Agriculturists' and Mechanics' Halls be ever found side by side." Agriculture he thought owed more to mechanical science than to any other. Chemistry, about which so much had been said of late, and which no doubt was fitted and destined to advance the farmers' art, had as yet accomplished directly but little, it was highly valuable suggestively, and had sometimes thrown a clear and beautiful light on several of the more abstruse processes of the farm, which had been adopted by the cultivator on the simple but sure ground of observation and extended experience. The Pro-

fessor referred eulogistically to similar institutions in each of the three sections of the mother country, whereby British Agriculture under free institutions had reached a point of excellence unparalleled in the history of our race, and argued that by the use of the same means, we on this western continent, in whose veins circulated he trusted no deteriorated blood, might with a reasonable certainty anticipate for ourselves and posterity, similar results. In relation to the connection of agriculture and the mechanic arts, he was disposed to regard the latter as preceding the former in origin, for even Adam in Paradise could not have cultivated a garden without some rude implement or other. At the Royal Agricultural Society's annual exhibitions in England, so increasingly great, has the number of implements and machines become of late years, that it has been found necessary in order to keep within a practicable space to admit only such as after minute inspection shall appear to have some decided originality in design or execution. The Agricultural Association of Upper Canada, was well known to occupy a field much wider than its name denotes;—horticulture, manufactures—and even the fine arts and ladies' work were all cheerfully embraced, the two latter had always proved the most attractive to a very large class of visitors. He would appeal to the ladies of Toronto for their invaluable sympathy and aid toward the next exhibition, and felt confident that the appeal would not be in vain. As large funds were necessary to sustain the association in an efficient manner the citizens will shortly be waited upon by the local committee for contributions, which it was earnestly to be wished would be commensurate with the wants of the occasion, and render the exhibition next September highly creditable to the metropolitan city of Upper Canada, and an honor to the country. He would not sit down without again reverting to the resolution which had called him up from his seat,—a resolution honorable to the industrious, intelligent, respectable body of men from whom it emanated, and for which in the name of the directors and of the local committee the Provincial Association he begged to tender his warmest and most grateful thanks.

Mr. G. P. RIBOUT, M.P.P., proposed the next resolution,

"That the thanks of the members of this Institute are especially due to the conductors of the Toronto Press, whose constancy in contributing their powerful aid to sustain the objects of the Institute, not only extends the sphere of its usefulness, but also arouses its members to individual exertion, and the public to an encouraging co-operation."

He was convinced that the resolution would be most cordially supported by the influential and respectable assemblage he had the honor to address. He had been given to understand that the Toronto press had upon all occasions where this Institute was concerned, most cheerfully extended its columns to make everything known in connection with it. He then passed a warm encomium on the President for his eloquent address, and concluded by thanking the council for the honor they had conferred upon him by inviting him to the entertainment.

Mr. J. HARRINGTON seconded the motion.

The Chairman intimated that some member of the press was expected to reply, but no one coming forward

Hon. Mr. BALDWIN rose, and said that silence was considered true eloquence, but whether the silence of the press might on this occasion be so considered he would leave the audience to determine. He then congratulated the President on the able address he

had delivered and concluded by moving a vote of thanks to the Chairman.

This was unanimously responded to, and the band struck up the National Anthem.

NORMAL AND MODEL SCHOOLS.

The Public Examination of the Normal School took place on Wednesday, from 10 o'clock to 4. The first part was an examination in Grammar and the principles of Teaching, conducted by Mr. Robertson, then an examination in the principles of Arithmetic, Algebra, Geometry, Mensuration, and Mechanics, conducted by Mr. Hind, followed by an examination in Hullah's system of Vocal Music by Mr. Walsh. An intermission then took place, and the first part of the Afternoon examination was on Natural philosophy and Agricultural Chemistry, by Mr. Hind, and on History and Geography by Mr. Robertson. The examinations, generally exhibited great proficiency in the various departments, a circumstance which must prove very gratifying to the country at large. At the close of the examination Dr. Ryerson rose to present the prizes given by His Excellency the Governor General, for the greatest proficiency in Agricultural Science. He said that the Normal School had suffered very much by the Government coming to Toronto, as they had lost the buildings which they occupied previous to that time, and as the new edifice was not yet completed he had not made much exertions to increase the number of students attending in the Normal School. The number of applications for the last Session was 93, out of these 13 were rejected, in consequence of not possessing the requisite qualifications. Eighty were consequently admitted, but that number had been considerably reduced. In former years they had had two terms of five months each; but it was thought advisable to change that system, and have instead one session of nine months. The experiment had not, however, been attended with success, as many students would have attended two different sessions, of five months who had not the means to attend nine months, and so long a session had had a hurtful effect upon the health of many of the students, insomuch that only forty-one of the eighty had finished their course, upwards of twenty of the 39 had left in consequence of ill health, and others had done so for want of funds to remain so long out of employment; but with the determination to return as soon as possible. From these three causes, then, the number had been reduced from 80 to 41. They had therefore, determined to revert to the old plan. The Doctor then adverted to the progress which the pupils had made in Drawing, under the teaching of Mr. William Hind, (a younger brother of the Professor,) who had lately come out from England, and had brought with him the highest testimonials from the Manchester Branch of the Government School of Design. He referred the audience to the many specimens of Drawing which were displayed in the room. They had all been drawn from natural objects, and were not copied in the old method of teaching Drawing. The experiment made by this young gentleman had succeeded well, and the specimens exhibited were highly creditable. The specimens of writing exhibited displayed great improvement under the able teaching of Mr. Stacy. The highest number of marks for the Governor General's prize were S. P. Robins, of Northumberland, 266, 1st Prize. For 2nd Prize: Thos. McNaughton,

of Durham, 199; Alex. Lester, of Lanark, 197; Alexander Martin, of Lennox, 192; Catherine Johnston, of York, 189; Samuel Ross, of Simcoe, 182; William Tilly, of Simcoe, 173; Benjamin F. Fitch, of Norfolk, 163; Elijah Procunier, of Norfolk, 152; David Haldiday, of Renfrew, 138; E. R. Morden, of Hastings, 126. He was informed that this year the students have evinced much more excellency than in any former year, and he had every reason to believe that they would go forth highly qualified for their labours. The demand for students trained in the Normal School is greater than ever it has been; applications are constantly made for teachers, and salaries from £75 to £100 are readily offered. This consideration, he trusted, would, in future sessions, greatly increase the number of students at the Normal School. The public examinations which have taken place have so impressed the Government, that it is their intention to select a certain number of the students—the young men trained at the Normal School—as officers in the Custom Houses in the different parts of the country. This selection would be made upon the certificate from the Superintendent and authorities of this Institute. The examinations had so deeply impressed the Inspector General that, in these various departments throughout the Province, he considered they would be admirably qualified, from their facility in figures, for this purpose. It was, therefore, their determination to select from this source a certain number every year to fill these offices. These would not only be the best scholars, but would be the most correct in their habits. His Lordship, the Chief Justice, then presented the prizes to the two successful competitors, and regretted that His Excellency was not present himself to have done so, as they would have heard some excellent remarks. He congratulated the young men on their success, and tendered them some sound counsel. He spoke at some length, but generally in so low a tone as not to be distinctly followed. This finished the proceedings, and the company retired well pleased.

In addition to the foregoing report, from a city contemporary, we subjoin the questions to which candidates had to return written answers, in competing for His Excellency's prizes for Agricultural Chemistry. There were twelve competitors;—the first prize consisting of books of the value of £5, was won by Mr. S. P. Robins;—the second consisting of books of the value of £3, was awarded to Mr. T. McNaughten, both young men, and sons, we believe, of Canadian farmers. We have attended these examinations from the first, in the capacity of an examiner, but on no previous occasion do we remember the candidates evincing so correct and extensive a knowledge of the subjects brought before them; a circumstance alike creditable to themselves and teacher. Three hours were allowed for preparing their answers, but without any reference to books, or communication with each other.

EXAMINERS:

THE MASTERS OF THE NORMAL SCHOOL.

THE PROFESSOR OF CHEMISTRY IN THE UNIVERSITY.

THE PRESIDENT OF THE AGRICULTURAL SOCIETY OF THE COUNTY OF YORK.

THE FIRST VICE-PRESIDENT OF THE AGRICULTURAL SOCIETY OF THE COUNTY OF YORK.

THE SECRETARY TO THE AGRICULTURAL ASSOCIATION OF UPPER CANADA.

1. Trace the history of an annual plant from germination to maturity.
2. Describe the mode in which compounds rich in carbon may be made to accumulate in the soil, and show how they serve as food for cultivated crops.

3. Of what does the inorganic plant consist? In what forms does the inorganic food exist in the soil? Describe the artifices you would employ in order to furnish a constant supply to cultivated crops in a fit state for immediate assimilation.
4. In what way does the porosity of the soil affect cultivated vegetables?
5. Name the sources of the organic food of plants, and describe the artifices you would employ in order to maintain a proper supply in the soil.
6. Describe the effects of Draining; also the mode in which you would proceed to drain your land.
7. Describe the most important proximate principles found in cultivated vegetables.
8. When crops are used as food for domesticated animals, what purposes do the different principles named in your answer to the last question serve?
9. Contrast the chemical functions of plants and animals.
10. To what points would you particularly direct attention in rearing stock?
11. How is animal heat supposed to be maintained? What effect will exposure to continued cold have upon the appropriation of the elements of food?
12. Describe the composition and physical characters of manures; distinguishing between vegetable, animal and mineral manures. Describe also the artifices you would adopt in order to preserve the properties of those which are liable to deterioration.

THE CANADIAN INSTITUTE.

The Conversation of this young and promising Society, for the encouragement of Literature, Science and Art, held in the Mechanics' Hall, in this City, on Saturday evening, April 3rd, was indeed quite a brilliant affair. The attendance was numerous, and comprised a large number of the literary, scientific and influential men of the city. The Hall was tastefully decorated with many valuable specimens of Art, in its several leading departments;—Painting, Sculpture, Carving, Engraving, Models of Steam Engines, Bridges, &c., &c. Captain Lefroy, R.A.F.R.S., occupied the chair, and gave a most interesting address on the progress of the Institute for the past year, during which a number of valuable papers had been read on various subjects. Several addresses were delivered in the course of the evening,—the subjects of them happily conceived and pleasingly treated. Professor Hind spoke on some of the characteristics of the climate of Western Canada, and was followed by Professor Croft on the manufacture and properties of Water Gas; Professor Cherriman succeeded even to the popularising of some recent investigations in relation to Mathematical Astronomy; and Rev. Dr. McCaul, President of the University, illustrated in a very lucid and happy manner, affording the audience both pleasure and instruction,—the method by which the Egyptian Hieroglyphics were deciphered. A detailed report of a meeting of this character does not belong to an Agricultural Journal; we are happy, however, in having an opportunity of recording in our columns the successful operations of a society, such as THE CANADIAN INSTITUTE, the existence of which is highly honorable to our City, and the influence of which cannot fail, if properly appreciated and supported, of raising the mental standard, and permanently advancing the material progress and social happiness of the country.

PICKERING FAIR.

A correspondent has sent us the following notice of a market or fair, for the sale of live stock, and the implements of husbandry, that has been in successful operation in the township of Pickering for some time. We are glad to hear of so favourable a result, as we have long thought that periodical markets of this kind, established in suitable places in the well-settled districts of the country, would be attended with convenience and advantage to the public. Hereafter we may refer to the subject more at large. In the meantime, we request the reader's attention to our correspondent's remarks:—

The Fair which has been established in Pickering for the last two years, and held at Norwood, now GREENWOOD, is found to be of great benefit to the farmers in that, and the surrounding townships. The fair is held quarterly, and takes place upon the first Wednesday in March, June, September, and December.

The turn out stock has been very respectable at all the different fairs yet held, and a great many generally sold off. The attendance of the Toronto buyers has been numerous, and they have found stock in excellent condition for their purpose. Something may be judged of the beef made in this vicinity when we state that Mr. John Millar sold a young ox, last December fair, for the very respectable price of one hundred dollars. We understand that Mr. Dow, of Whitby, sold a pair last fair day, being Wednesday, the 3rd of March; we did not exactly hear the price, but we know for certain that Mr. D. was asking £50 for them, and that he had £45 bid some weeks before, when we saw the cattle at his own farm. Mr. Gould was the buyer of both of these excellent lots. This fair is also attended by those who sell ploughs, Harrows, Drills, Rakes, of various sorts, churns, pumps, and many other implements and utensils used in Agriculture and the dairy. The fair is now avowedly patronized by the Pickering Township Agricultural Society, and seems to be creating emulation amongst farmers, and improvements in stock, both in breeding and fattening—second, perhaps, only to the effects of that society.

CANADA: PAST, PRESENT, AND FUTURE. Toronto: Thomas Maclear, Yonge Street.

The 9th part of this valuable publication has been received, and as the work approaches completion, its useful character is well sustained. The present part completes the description of the several Counties, and enters upon a general review of the natural productions of the Province, and its advantages as a field for enterprise and settlement, compared with other colonies belonging to Great Britain. It is also accompanied by two neatly engraved maps, one of the County of Prince Edward; the other of the Counties of Lanark, Renfrew, Carleton, Leeds and Grenville.

MORTON'S CYCLOPEDIA OF AGRICULTURE.—Parts 15, 16, and 17, of this original and elaborate work, fully justify the high hopes and opinions we have previously expressed in relation to the earlier numbers. Each article is written by a distinguished person, *practically acquainted with his subject*; so that the work may be regarded as the result of an extensive experience in the various departments of Agriculture, and it has little or nothing in common even with the best compilations. We shall give our readers a few

specimens in succeeding numbers. It can be had in parts as published by Blakie & Son, of Glasgow, by their Agent, Mr. Thomas Maclear, of this City; and supplied to subscribers, in any part of Upper Canada, by his Travelling Agents.

PRIZE REPORTS.—At the recent meeting of the Board of Agriculture the first prize of £20 was awarded to the Report of the County of Wellington, prepared by John Harland Esq., of Guelph; the second of £15 to the Report of the County of Hastings, written, we understand, by William Hutton, Esq., of Belleville.

WANTED.—A young man recently from England; but who has had some experience in Canadian Farming, is desirous of obtaining a situation as Head man on a farm. Satisfactory testimonials as to ability, &c., will be given. Address A. B., at this office.

TO CORRESPONDENTS.

A. CONSTANT READER, *Chatham*—It is quite probable that *Rape* would succeed in very many instances, in your section, by sowing early in the fall, for spring feed. We know an extensive cow-keeper of this city, who has tried the experiment with success. The risks of failure would arise from the exposure of the plant during the severe weather of winter, in the absence of snow, and the alternate freezing and thawing in early spring. *Rape* is a hardier plant than the turnip, and will grow on inferior and heavy lands. We recommend you to try the experiment, which the only way of arriving at the absolute truth. We will shortly prepare an article on the culture of this plant.

T. W.—*Hemp* is undoubtedly worth attending to in Canada. We will endeavour at an early period to procure the information you require, and communicate it through the medium of our pages.

W. H. SOTHAM.—We should be happy to publish Mr. Sotham's views on the Principles of Breeding, if treated in a candid and comprehensive spirit, and devoid of special pleading.

THE CATTLE CONTROVERSY.—Mr. Parson's reply to Mr. Sotham did not reach us in time for the present number.

W. A. W. ETOBICOKE.—We regret that your former communication got mislaid. *Downing on country houses* is a good book, and would probably meet your wishes fully. An American publication of a more recent date has been highly spoken of, entitled (if we remember correctly,) *Rural Houses*; and we see that Lewis F. Allen of Black Rock has just issued a work called, "*Rural Architecture*," being a complete description of farm-houses, cottages, out-buildings, &c." We do not know the prices of these publications, but believe them to be very moderate. The first mentioned contains only a portion of Downing's original work, expressly adapted to the wants of the rural population. Any respectable Canadian bookseller will procure them. *Paige's Threshing Machines* can be safely recommended; we do not know the price of the size you require; particulars can be readily obtained by applying to Mr. R. Wilson, the agent at Hamilton. There are several makers of thrashing machines of excellent quality and action in different parts of the Province.

TO BREEDERS OF IMPROVED STOCK.

We have received from Lewis G. Morris, Esq., the following announcement of his next annual sale, which such of our subscribers as are desirous of improving their stock could not do better than attend. Mr. Morris's sound judgment, great industry and enterprise in his particular department, coupled with his high standing for honorable dealing, fairly entitle him to the confidence and support of a discerning public.—EDITOR C. A.

LEWIS G. MORRIS'

Third Annual Sale, by Auction, of improved Breeds of Domestic Animals, will take place at Mount Fordham, Westchester County, (11 miles from the City Hall, New York,) on Wednesday, June 9, 1852.—James M. Miller, Auctioneer.

Application need not be made at private sale, as I decline in all cases, so as to make it an object for persons at a distance to attend. Sale positive to the highest bidder, without reserve.

Numbering about fifty head of horned stock, including a variety of ages and sex, consisting of pure bred short horns, Devons, and Ayreshires; Southdown buck lambs, and a very few ewes; Suffolk and Essex swine. Catalogues, with full pedigrees, &c., will be ready for delivery on the first of May—to be obtained from the subscriber, or at the offices of any of the principal Agricultural Journals or stores in the Union. This sale will offer the best opportunity to obtain very fine animals I ever have given, as I shall reduce my herd lower than ever before, contemplating a trip to Europe, to be absent a year, and shall not have another sale until 1854.

It will be seen by reference to the proceedings of our State Agricultural Society that I was the most successful exhibitor of domestic animals, at the late State Fair.

It will also offer a new feature to American Breeders—one which works well in Europe; that is, *letting* the services of male animals; and will solicit propositions from such as see fit to try it. Conditions—The animal hired, to be at the risk of the owner, unless by some positive neglect or carelessness of the hirer; the expense of transportation to and from, to be borne jointly; the term of letting, to be one year or less, as parties agree; price to be adjusted by parties—to be paid in advance, when the bull is taken away; circumstances would vary the price; animal to be kept in accordance with instructions of owner, before taking him away.

I offer on the foregoing conditions, three celebrated prize bulls, "Major," a Devon, nine years old; "Lamartine," short horn, four years old; "Lord Eryholme," short horn, three years old. Pedigrees will be given in catalogues.

At the time of my sale, (and I would not part with them before) I shall have secured 2 or 3 yearly sets of their progeny; and as I shall send out in August next a new importation of male animals, I shall not want the services of either of these next year. I would not sell them, as I wish to keep control of their propagated qualities hereafter.

I also have one imported buck, the prize winner at Rochester last fall, imported direct from the celebrated Jonas Webb; and also five yearling bucks, winners also, bred by me, from bucks and ewes imported direct from the above celebrated breeder; they will be let on the same conditions as the bulls, excepting that I will keep them until the party hiring wishes them, and they must be returned to me again on or about Christmas day. By this plan, the party hiring gets rid of the risk and trouble of keeping a buck the year round. All communications by mail must be prepaid, and I will prepay the answers.

L. G. MORRIS.

Mount Fordham, March, 1852.

THE WEATHER, CROPS, AND MARKETS.

We have at length got through one of the longest, severest, and, in consequence of frequent winds and the absence of sun-shine, most unpleasant winters, that has occurred in Canada, for many years. Spring work has only just commenced and very little sowing has yet been done; the season, in fact, is nearly or quite a month later than that of last year. Cattle in many places are suffering much from the effects of the long snow and cold, and in some of the back settlements, we hear they are dying in great numbers for want of sufficient food. Many of their evils, however, might be prevented or at least mitigated, by a little fore-thought, either by increasing the amount of food, or by diminishing the number of animals to the proper proportion of the supply of fodder and by providing *suitable shelter*.—The past winter will read, it is to be hoped, a salutary lesson for the future, as regards these matters.

The accounts we get from different sections of the Province of the winter wheat are upon the whole of an encouraging character. In some places the plant has suffered from exposure or snow drifts; but these evils we have reason to hope are but partial; and if this fine, warm weather should continue that has just commenced, the prospect of the wheat crop will present a very encouraging appearance. The copious and continued covering of snow, which we had during the late winter, has doubtless had a most beneficial influence on the wheat plant.—Rain is copiously falling to-day, and the temperature is indicative of Spring. The buds of fruit and forest trees are expanding, and we have noticed during the last twenty-four hours in several species such as the Elder, the Spruce and the Gooseberry, the development of leaves. With a warm mean temperature in connection with the present amount of moisture, the progress of vegetation will be astonishingly rapid.

The badness of the roads and coldness and lateness of the season have caused our markets to be bare of butter, eggs, &c., which have consequently ruled higher. Grain, however, continues depressed, with little doing. The recent accounts from England, contrary to general expectation, are of a discouraging nature, and the late advance in price has not been sustained. The Spring commenced in the United Kingdom with dry, cold winds and all farm operations were in a forward state. Wheat although somewhat backward was looking healthy, and a large breadth of potatoes had been early planted under the most favorable circumstances.

May 1st, 1852.

The Canadian Agriculturist,

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N. B.—No advertisements inserted. Matters, however, that possess a general interest to agriculturists, will receive an Editorial Notice upon a personal or written application.

THE
CANADIAN AGRICULTURIST
AND
Transactions
OF THE
BOARD OF AGRICULTURE OF UPPER CANADA.

VOL. IV.

TORONTO, JUNE, 1852.

NO. 6.

A REPORT ON THE STATE OF AGRICULTURE
IN THE COUNTY OF WELLINGTON, 1852.

TO WHICH WAS AWARDED THE PRIZE OF TWENTY POUNDS, OFFERED BY THE BOARD OF AGRICULTURE.

The County of Wellington (one of the United Counties of Wellington, Waterloo and Grey) is composed of thirteen Townships, viz., Guelph, Eramosa, Nichol, Puslinch, Erin, Garafraxa, Pilkington, Peel, Minto, Maryborough, Arthur, Luther and Amaranth, and occupies a surface of 600,000 acres of land, which is neither flat nor hilly, but gently and beautifully rolling. 340,212 acres are in the hands of actual settlers.

The County commences about fifteen miles north-west of Lake Ontario, and extends in that direction to within forty miles of Owen's Sound, on Lake Huron.

The climate is decidedly healthy, but nevertheless it is subject to great variations.

The soils are somewhat irregularly distributed. Loam, clay and gravel may be found in almost every Township; but a rich, deep loam predominates, and it generally rests on a bed of limestone or gravel.

The whole County is singularly well adapted for cultivation.

The Townships of Eramosa, Guelph, Erin, Puslinch, Nichol and Garafraxa, have each been partially settled from twenty to thirty years, and are now thickly inhabited.

Arthur, Maryborough, Peel and Pilkington, are rapidly settling.

Amaranth, Minto and Luther, are yet in their infancy, and as the land in the two former Townships is not inferior to any in the Province, they offer a wide and advantageous field for the operations of enterprising and industrious emi-

grants. The Township of Luther is almost entirely swampy.

Water is exceedingly pure and plentiful throughout the County. Creeks of living water are in abundance, and never failing wells may be obtained at a depth averaging less than twenty feet.

The Grand River, the Speed, the Canistoga, and the Eramosa River, intersect the County, upon each of which are many excellent mill privileges, great numbers of which are yet unappropriated.

Upon these Rivers are situated the Town of Guelph (the capital of the county) and the flourishing villages of Fergus, Elora, and Rockwood. These and all other running waters in the County are literally alive with a very delicious variety of Trout, which afford much sport to the angler and a great treat to the epicure.

Property is very much divided, being generally held in Lots of from 100 to 200 acres. Mr. Howitt of Guelph is probably the largest proprietor, and Mr. Laidlaw of the same place the largest Farmer.

Several proprietors in Guelph and Eramosa cultivate their land to the extent of 150 acres, or more, but the average size of cleared Farms in these Townships does not probably exceed 80 acres. In the more recently settled Townships the clearings will not amount to so high an average, although even in them many extensive farms may be met with.

It is utterly impossible to give a correct idea of the value of Land throughout the county. It may however be stated that a Farm consisting of 100 acres, 80 acres of which are cleared, and upon which is situated a good Frame House, barn, stables and sheds, was sold a short time ago for £1200 cash. This farm is situated about a mile and a-half from Guelph. Very few persons who possess 100 acres of Land, with 70 or 80 of them cleared, and in a proper state of cultivation, and having comfortable

buildings thereon, and situated within a dozen miles of Guelph, would like to dispose of it for less than £1000. There are however many instances of persons being necessitated to take much less; and in situations more remote from market, so high a price would probably scarcely be asked.

Wild Land may be purchased in Maryborough and other distant Townships at an average of about 12s. 6d. per acre.

There are in the County at this time about 2000 Freeholders.

The Buildings here were originally composed of unhewn logs, but within the last five years immense improvements have taken place. The log barns and stables have in many cases entirely disappeared, and have been replaced by extensive piles of frame buildings, which are generally arranged in such a manner as to afford a degree of comfort and convenience almost unknown to the great majority of Farmers in Great Britain.

Shanties are things which may be remembered by the old settlers, but it is long since they were replaced by comparatively comfortable wooden houses, and these houses are in their turn giving way to *mansions* composed of the more durable materials of brick or stone.

Wells of water under cover, stone dairies, wood houses, smoke houses, ice houses and bathing houses, are amongst the conveniences and luxuries by which the Farmer begins to surround himself, and they certainly indicate a degree of prosperity which it is truly delightful to contemplate.

Farm Houses are however almost invariably built too near a public road, which deprives the occupier of the privacy to which every landed proprietor is entitled, and subjects him to many annoyances which might be avoided by selecting a location nearer to the centre of his domain. Gardens and orchards, the necessary appendages to a farm house, are subject to great depredations when near a public road, from which they would be nearly, if not wholly exempt, if placed at a reasonable distance from it. Besides when a house is built close to, and fronting a public road, the occupants are doomed to the disagreeable necessity of overlooking the property and proceedings of their neighbour, instead of having a constant opportunity afforded them of surveying their own, than which one would imagine nothing could be more delightful, particularly if a little care was bestowed upon improving the prospect by planting useful and ornamental trees in every convenient spot, a mode of improvement which it is to be regretted is so much neglected.

Persons who are styled farmers here, are a very different class of men to those who follow

the same occupation in the British Isles. It is true that numbers have settled here who were brought up to the plough, but the great majority of those who now live by cultivating the soil, were educated to some variety of trade, but nevertheless many of them manage their farms in a most creditable manner, and are men of ingenuity and persevering industry, who have seen much of the world, and have profited by experience; they are superior to narrow prejudices, and will not persist in doing wrong because their forefathers did so; but they are anxious to acquire information, even though it should be conveyed to them through the medium of a printing press. They have an idea of commerce, and generally decline selling their produce to an old customer if a new one will offer them a higher figure; and if they succeed in obtaining a better price than their neighbour, they do not from motives of contemptible jealousy conceal the fact in the hope of monopolizing a market, but they at once proclaim it openly and aloud; so much so indeed that an advance of a penny per bushel in the price of grain at Guelph, is known in every part of the County within twenty-four hours of such advance taking place. These persons are not afraid of their children becoming lazy on account of acquiring knowledge, but they exert every means to make them wiser and better men than themselves, and it is devoutly to be wished [without entering upon politics] that they may so succeed in their praiseworthy efforts as to qualify the sons of farmers to be the legislators for a purely agricultural community.

After the above description of the cultivators of the soil, it will not be expected that any perfect idea of the mode of management can be given, for probably no two farmers adopt precisely the same system; indeed, in a County like Wellington, the oldest part of which has so recently been recovered from the Forest, situations and circumstances so greatly vary as to render systematic management almost, if not altogether, impossible. The whole County is certainly not cultivated like a well kept garden, but the reporter will venture to assert that he can point out many farms in various parts of it, which, for neatness and cleanliness, would not suffer by a comparison with the best managed farms in England or Scotland.

Wheat, peas, oats and barley, are the chief crops cultivated. Fall wheat is sown upon summer fallow, or pea stubble; summer fallow produces the best crop, but pea stubble frequently produces the finest quality. Care is generally taken by the best farmers to avoid taking two white crops in succession off the same piece of land.

Of the produce of grain per acre, throughout

the County, it is equally difficult to speak with certainty as of the mode of management; the returns of the Census Commissioner by no means give a perfect idea of it. A good farmer would consider 30 bushels of wheat, 30 of peas, 60 of oats, and 35 of barley, about a fair average on his own farm; but it is quite probable that his next neighbour, in consequence of slovenly management, would not in the same season realize more than half that quantity.

Spring wheat, which a few years ago was the staple commodity of the County, is now very unfashionable. Fall wheat was at that time almost certain to be much injured, if not entirely destroyed by rust, or mildew; whilst Spring wheat was considered tolerably certain of producing a crop;—but, by some unknown agency, a great change has taken place, and Fall wheat is now cultivated extensively and with very favourable results.

Peas have become a very favourite crop; they are readily harvested by a horse-rake; they have hitherto been chiefly used for the fattening of hogs, but they have now become an important article of export, and they are regarded as being an excellent preparation for Fall wheat.

Turnips are not grown to any great extent in consequence of the expense of pulling and storing them; James Wright, Esq., the President of the Agricultural Society, has however invented a machine for cutting off the tops and turning out the roots, which he confidently anticipates will effect a great saving of manual labour: it will be worked by one or two horses, and will be in operation next season.

Potatoes, which used to be somewhat extensively and profitably cultivated, have of late years been almost a general failure, and few persons at the present time risk the planting of more than to produce sufficient for their own culinary purposes. Many experiments have been tried to restore this valuable esculent to its original quality and abundant yield; the most successful and certainly the most simple of which has been to plant on a virgin soil. It is said that potatoes which have been left in the ground through the winter, produce an abundant yield and an excellent quality the following summer: if this is really the case, it obviously points to the propriety of planting in the autumn.

The cultivation of hemp and flax has been tried upon a small scale, both of which appear to grow luxuriantly.

There are some fine fields on the banks of the River Speed, which afford a rich natural herbage for cattle, and it is on them that the cows are fed which produce the Stilton Cheese for which Mr. Parsons has rendered the County of

Wellington so celebrated;—and it is also on them that the splendid Durhams were chiefly fed which were so successfully exhibited by Mr. Howitt at the Provincial Shows held at Toronto, Hamilton, and Niagara.

The artificial grasses used are almost exclusively clover and timothy, both of which, in ordinary seasons, produce abundantly.

Upland grass is usually broken up about the third year, and wheat or peas sown upon the first furrow.

Dairying is not yet carried on to any great extent, but the good wives of Eramosa have already justly obtained a great local celebrity for the quantity and quality of the butter which they produce, and cheese making is steadily on the increase.

Portable thrashing machines of almost every variety may be met with, and each variety has its advocate. Winnowing machines are in the hands of every farmer, but none of the varieties in use approach perfection. The wheel carriages and sleighs in use are well adapted to the present circumstances of the County. Cultivators have been introduced with good effect, but their construction is defective, and their price is excessive as compared with the price of grain. The same remarks may with justice be applied to straw cutters. The Scotch iron plough is in the hands of many of the best ploughmen, and a very superior description of wooden plough is manufactured in the Township of Eramosa. A very great improvement has taken place in the construction of harrows, and the great clumsy and almost useless things, to which nothing less than a yoke of bulls ought ever to have been hitched, are fast giving place to light, lively working, and effective implements.

Revolving horse rakes are manufactured in Guelph, and are fast coming into favour; it is certain that no judicious farmer will long be without one. Grain cradles of the best description are manufactured in the County. Scythes, hand hay rakes, pitch forks, dung forks, scoops, shovels and spades, which for lightness and utility perfectly astonish an old countryman, are to be found in the possession of all prudent farmers.

Orchards are being generally planted throughout the County; it having been fully demonstrated that with proper attention, every variety of apple tree will grow as luxuriantly and produce fruit in quantity and quality very little, if at all inferior, to any in the Province. An extensive Nursery has been established in Guelph, which is abundantly stocked with choice varieties of thrifty trees, and the farmers will grossly neglect their interest if they do not take proper and speedy means to have large quantities of them transplanted to their own estates.

The art of gardening is cultivated by amateurs, who produce specimens of onions, carrots, parsnips, asparagus, and celery, of a size and quality which can scarcely be excelled. A Horticultural Society has for some time been in existence in Elora, and another one has recently been established in Guelph. Such Societies, if well conducted, must be productive of much good.

Fences are almost exclusively composed of Rails, placed in the zig-zag form; in many cases, however, a vast improvement has been made in the method of constructing them. The stakes at the corners are now placed perfectly upright, and are secured at the top with a cap; in this way they occupy less ground, are much stronger, more durable, and less ugly than when made on the original plan. This kind of fence might be much improved in appearance by an ornamental tree being planted in the corner of every third pannel. Post and rail, post and board, and stone fences, are used, but not generally.

Those horrid nuisances, bars, are used instead of gates, but fortunately gates are becoming more fashionable than formerly.

The horses are of no distinct variety, but they are tolerably active and hardy: means are being taken by the Agricultural Society to effect an improvement in the breed by offering large premiums for the introduction of superior stallions.

To horned cattle of this County is perhaps unrivalled in the Province, and for its pre-eminence in this respect, it is indebted to the extensive importations of pure Short Horns by Rowland Wingfield, Esq., and the Hon. Adam Fergusson. The herd of the former gentleman was purchased by Mr. Howitt, a gentleman of large fortune, and a skilful and enthusiastic breeder, residing at Guelph Grange. Mr. Howitt bought one of the Hon. A. Fergusson's imported cows, and a bull, which was bred by that gentleman; he also bought a bull from Mr. Vail of Troy, which was bred directly from the highly celebrated herd of the late Mr. Bates of Kirkleavington. Mr. Howitt's stock has rendered itself so conspicuous, wherever it has been exhibited, as to need no further comment on this occasion.

A very superior bull was also imported from England, by a Mr. Atkinson of Guelph, which has effected a marked improvement in the young stock of his neighbourhood.

A number of cattle have descended from the herds above mentioned of a quality so good that the uninitiated may well be excused for mistaking them for thorough-bred.

A great number of Leicester and Southdown

sheep, from the most improved English flocks, have been imported into the County, and ten years ago it had as high a character for sheep as for cattle; but the wool carders were clamorous for fine wool, and the farmers wanted a heavy fleece; so, by way of compromise, they crossed the Leicesters with the Downs, and then bred from the offspring, and by persisting in this pernicious course for a few years, they scarcely got any wool at all, and very nearly lost the carcass of the sheep into the bargain. The farmers have, however, long since discovered their error; a more judicious system of breeding has been adopted; fresh Leicester blood has been procured, and it may reasonably be expected, as it certainly is hoped, that shortly a respectable breed may be restored.

An excellent breed of hogs exists in the County, but the farmers must be cautious of breeding from mongrels, or their hogs will become as much deteriorated as their sheep.

Deer are plentiful in a wild state, but the time for domesticating them in Parks has scarcely yet arrived.

Goats are discouraged on account of their mischievous propensities.

The same remark will apply to Rabbits.

Poultry of every variety may be reared in abundance, and if properly housed during winter, and well fed, they might be made profitable.

Pigeons are kept more for ornament than for profit.

Bees are not very generally kept, but some good housewives make a considerable addition to their pin money by taking care of them.

In addition to the improvements which have taken place in buildings, fences, and implements, it is proper to mention that under-draining has been practiced by some farmers in Guelph and Eramosa to a considerable extent, and, as the benefit arising therefrom is most manifest, the example will doubtless be followed.

The chief manure used is that which is produced in the stables and barn yard, from whence it is carted early in the summer and deposited in a heap in the immediate vicinity of the spot where it is to be used, and is there left to ferment. It is usually applied to summer fallow, and is ploughed in with the last furrow as speedily as possible after it is spread, in order to prevent evaporation. Its application is always attended with good effect.

Buckwheat, clover, &c., are occasionally ploughed in, whilst in a green state, but the experiment frequently proves unsuccessful. Lime has been tried, but not on a scale sufficiently large to warrant any one in speaking positively as to its results. Marl is found in several parts

of the County, but is not used. Gypsum is the favourite manure for grass land.

Labour is very scarce and dear. Good servants are scarce, and bad ones seldom stay long in a place. Landowners ought to build cottages on their farms and attach a garden to each, by which means labouring emigrants might be induced to enter into their employment, until they became in some degree initiated into the customs of the country, instead of running the risk of starvation by at once penetrating into a dense forest in search of subsistence. A farmer would find it much more to his advantage to employ a man with a family to do the work of his farm, than a single one; as a married one, having a cottage and garden found him, would naturally take an interest in what was going on about him, his wife would be found of great service at busy seasons, and even children might be made useful. Another advantage would obviously arise from employing a man with a family, and that is that he would gladly take a great portion of his wages in the produce of the Farm, whilst an unmarried one almost invariably requires payment in cash.

Four years ago, the inhabitants of this County had just reason to complain of the great difficulty of reaching a market, in consequence of the almost impassable state of the roads; but, in the course of that four years, an excellent gravel road has been constructed through the centre of it, which has given them ready access to the port of Hamilton at all seasons, and has had the effect of reducing the cost of transport fully cent. per cent. The road in question commences at the City of Hamilton, passes through the Town of Dundas, the Townships of Flamboro' and Puslinch, the Township and Town of Guelph, about four miles North-west of which it diverges on the one hand to the village of Elora on the route to the Saugeen, and on the other to the village of Fergus on the direct road to Owen's Sound, to which it is highly probable that in four years more it will be completed. In addition to this vast improvement it is confidently anticipated that in less than three years from the present date (1852) a Railroad will be in full operation from Guelph to Toronto, on the one hand; and from Guelph, through Galt, to Hamilton on the other.

The great obstacles to improvement in Agriculture, are want of knowledge and capital, the low price of produce, the extravagant price of labour, and the long duration of winter.

The first of these may be removed by reading and study; the second by careful management and persevering industry; the third by obtaining reciprocal trade with the United States, or protection in the British Market; and

the fourth by building cottages on Farms as previously pointed out, and by affording increased facilities for Emigration from Europe.

The means of acquiring a tolerable education is now placed within the reach of all, as Common Schools are numerous, and the system of education has been much improved.

An Agricultural Society was formed here in 1841. The objects of which have been to encourage the importation and improvement of farm stock and produce; the improvement of tillage, agricultural implements, &c., the encouragement of domestic manufactures, of useful inventions, and generally of every branch of rural and domestic economy; and, in the attainment of these objects, it is not too much to say that it has been eminently successful.

The first year of its existence it consisted of 102 members, but its numbers continued steadily to increase until the last year, when it numbered 648 members. Its management was popular and effective. At the annual general meeting a President, four Vice-Presidents, and a Secretary and Treasurer were elected from the mass of subscribers; then each Township or union of Townships, furnishing seventy-five members, selected five Directors from amongst themselves. These together formed the County Board, who managed the general affairs of the Society. The Directors of each Township Society had the power of electing a local Committee to assist in managing the affairs of their own Society: they had at their command the whole of their subscriptions, and one half of the annual Legislative Grant duly apportioned to the amount of their subscriptions. The other half of the Legislative Grant was devoted to the support of the County or Parent Society, out of which were paid the premiums at the General Show, the salary of the Secretary and Treasurer, (who acted for the whole of the Townships, as well as for the County) and all other general expenses of the Society.

The following Table will show the amount subscribed by each Township Society for the year 1851 and the proportion of the Legislative Grant which was awarded to each, and the total amount which was placed at their disposal for the purposes of a Township Show:

Name of Township Society.	Amount subscribed.			Proportion of Grant.			Total amount at disposal.		
	£	s.	d.	£	s.	d.	£	s.	d.
Guelph,	50	5	0	38	15	5½	89	0	5½
Eramosa,	33	5	0	25	13	1½	58	18	1½
Nichol,	27	10	0	21	4	4½	48	14	4½
Puslinch,	26	0	0	20	1	2½	46	1	2½
Pilkington and Elora,	25	0	0	19	5	10	44	5	10
	£162	0	0	£125	0	0	£287	0	0

The County Show was held immediately after

those held in the Townships, and each person who subscribed one dollar towards the funds of any Township Society was entitled to exhibit stock or produce to any extent, at the County Show, without being required to make any further payment. This system had the effect of bringing all the best stock and produce in the County into direct competition, and was attended with the most gratifying results, and gave entire satisfaction to all parties concerned.

The following Table will show the amount of Premiums offered in each class, throughout the County, in the year 1851, and the number of Lots entered to compete for each :

Class.	Amount offered.			Number of Lots entered to compete.
	£	s.	d.	
Horses,	69	17	6	370
Horned Cattle,	54	10	0	310
Sheep,	33	17	6	222
Hogs,	21	7	6	43
Grain,	45	15	0	289
Seeds,	14	12	6	95
Roots,	18	10	0	332
Dairy Produce,	22	15	0	216
Manufactures,	23	3	9	177
Ploughing,	35	10	0	95

Total amount of Premiums, £339 18 9 Total lots 2149

The County Society has been re-organized under the Statute 14 and 15 Vic. cap. 127, and the following is a list of the officers elected :

President.

JAMES WRIGHT, Esq., of Guelph.

Vice-Presidents.

JAMES COWAN, Esq., of Waterloo.

LAZARUS PARKINSON, Esq., of Eramosa.

Secretary and Treasurer.

JOHN HARLAND, of Guelph.

Directors.

JOHN MCCREA, Esq., of Guelph.

ALEXANDER HARVEY, Esq., of Fergus, in the Township of Nichol.

JAMES ROSS, Esq., of the Township of Pilkington.

WM. CLARK, Esq., of the Township of Erin.

DAVID STIRTON, Esq., of the Township of Puslinch.

Guelph, 20th March, 1852.

LAMBTON AGRICULTURAL SOCIETY.

SARNIA, April 2nd, 1852.

To the Secretary of the Board of Agriculture.

SIR:—The Lambton Agricultural Society not having been formally organized, as such, till February last, the Directors have not deemed it necessary to present a formal Report. Nevertheless, as many of the members of this Society were formerly members of the St. Clair Agricultural

Society, we have thought it proper to present, through you, to the Board of Agriculture, a brief statement of our position and prospects in reference to Agriculture.

This and the neighbouring Townships began to be settled about 1834 or 1835. For a long period the settlers were very widely scattered, and as in all new localities, they had many and great difficulties to contend with. Determined perseverance, however, in time, overcame many of these difficulties, and the more enterprising began to think of further improvements. In Dec. 1843, the St. Clair Agricultural Society was formed, and continued in operation till it was superseded by the formation of the Lambton Agricultural Society. This and the neighboring Townships have been much benefited by the Agricultural Society. Stock has been much improved, especially cattle and sheep. A spirit of enterprise and emulation has been excited among farmers, which, while it tends to develop their own individual powers, tends also to bring to light the latent resources of the country.

At the annual Show of the St. Clair Agricultural Society, held in October last, we had a very creditable exhibition of Agricultural produce.—Some very good horses were exhibited, a number of excellent cattle, both of the Durham and native breeds, as also some very superior sheep. The wheat crop having been abundant in this locality, a great many excellent specimens were exhibited. Roots of various kinds were well represented. There were also some fine specimens of apples and other fruits. A great variety of articles of domestic manufacture were also exhibited. The amount of premiums awarded at the Show was £29 12s. 6d.

Our Society, as now organized, consists of one hundred and thirty members. Our finances are in a flourishing condition, there being in the Treasurer's hand at present the sum of £75.

We are now directing our efforts to the improvement of our breed of horses, and hope that we shall succeed. We are also endeavouring to obtain improved implements, and improved varieties of the different kinds of grain; all matters of the greatest moment.

Our section of country is yet new, and in many respects far behind, but we will do our best to follow the older and more advanced sections of our country.

All which is respectfully submitted.

ROBERT SIMS, *President.*

EBEN. WATSON, *Secretary.*

RULES AND REGULATIONS

OF THE

EXHIBITION OF THE AGRICULTURAL ASSOCIATION OF UPPER CANADA, TO BE
HELD IN THE CITY OF TORONTO, SEPTEMBER 21, 22, 23, and 24, 1852.

WITH THE

LIST OF PRIZES.

OFFICERS—1852.

President :

Thomas Clark Street, Esq., M.P.P., Niagara Falls.

1st. Vice President :

William Matthie, Esq., Brockville.

2nd. Vice-President :

C. P. Treadwell, Esq., L'Original.

Ex-Presidents :

E. W. Thomson, Esq., Toronto.

Hon. Adam Fergusson, Woodhill.

H. Ruttan, Esq., Cobourg.

J. B. Marks, Esq., Kingston.

Treasurer : R. L. Denison, Esq., Toronto.

Secretary : George Buckland, Esq., Toronto.

Consulting Chemist : Professor Croft, University of Toronto.

Seedsman : Mr. James Fleming, Toronto.

Wm. McDougall, Esq.

George Denison, Esq.

Professor Hind.

F. W. Cumberland, Esq.,

Dr. Melville.

E. F. Whittemore, Esq.

S. Thompson, Esq.

T. J. O'Neill, Esq.

RULES AND REGULATIONS.

Extract from the By-Laws of the Association :—

The members of the Agricultural Societies of the several Townships within the County or United Counties, wherein the Annual Exhibition may be held, and the members of the Society of the said County or United Counties, shall be also members of the Association for that year, and have badges accordingly; provided the Agricultural Societies of the said Townships, or the Society of the said County or United Counties shall devote their whole funds for the year, including the Government Grant, in aid of the Association; and that the office-bearers of the Societies of other Townships in other Counties, and the office-bearers of the Societies of such Counties as shall have made donations or shall have contributed towards the Provincial Show, (in the case of Townships not less than £10, and in the case of Counties not less than £25,) for that year, shall also be furnished with badges of membership, and shall have free entry into the grounds of the Exhibition.

1st. The payment of 5s. and upwards constitutes a person a member of the AGRICULTURAL ASSOCIATION OF UPPER CANADA for one year; and *Two Pounds Ten Shillings* for life, when given for that specific object, and not as a contribution to the local funds.

2. No one but a member will be allowed to compete for prizes except in Classes R, U, and W.

3. All Stock and Articles intended for Exhibition, must be entered in the Secretary's Books at Toronto, before 8 o'clock on *Tuesday Evening*, the 21st of September; if by letter the postage must be paid, and

THE BOARD OF AGRICULTURE,

Consisting of the following members, constitutes the Council of the Association, between the annual meetings thereof:—

Hon. Francis Hincks, Inspector General.

E. W. Thomson, Esq., *Chairman*, Toronto.

Hon. Adam Fergusson, Woodhill.

Henry Ruttan, Esq., Cobourg.

R. L. Denison, Esq., Toronto.

David Christie, Esq., M.P.P., Brantford.

J. B. Marks, Esq., Kingston.

John Harland, Esq., Guelph.

George Buckland, Esq., *Secretary*, Toronto.

LOCAL COMMITTEE.

J. G. Bowes, Esq., Mayor—*Chairman*.

R. L. Denison, Esq.,—*Treasurer*.

W. B. Crew, Esq.,—*Secretary*.

W. B. Jarvis, Esq., Sheriff.

J. W. Gamble, Esq., Warden.

F. Widder, Esq., Com. of Canada Company.

Professor Croft.

T. D. Harris, Esq.

Alexander Shaw, Esq.,

the person entering must remit 5s. being the amount of subscription constituting a member.

4th. Badges from the Treasurer's Office will be furnished Members, which will admit them and their Ladies and children under 14 years of age in carriages, free to every department of the Exhibition, during the Show. Life Members admitted with their families *free*.

5th. Tickets for admission to those who are not members 7½d. each time admission. Carriages including drivers 2s. 6d.; passengers to pay 7½d. each. Horsemen, not members, to pay 1s. 3d. each admission.

6th. Every article exhibited for competition, must be the growth, produce, or manufacture of Upper Canada, except Class W. Live Stock for breeding must be the property of persons residing in Upper Canada. All premiums for articles entered in competition are to be awarded to the *producers* only.

7th. Discretionary premiums will be awarded for such articles as may be considered worthy by the Judges, although not enumerated in the list, and the Committee will determine the amount of premium.

8th. In the absence of competition in any of the Classes, or if the Stock or Articles Exhibited be of inferior quality, the Judges will exercise their discretion as to the value of the premiums they award.

9th. The Judges, Competitors and Officers of the Association only will be permitted to enter the show Grounds, until two o'clock, P. M., of Wednesday the 22nd September, at which hour members will be admitted. Non members will be admitted on *Thursday morning* at 8 o'clock.

10th. No Articles or Stock exhibited will be allowed to be removed from the grounds till the awards are made, or without the permission of the President, under the penalty of losing the Premiums. An Auctioneer will be on the spot after the premiums are announced, and every facility afforded for the transaction of business.

11th. Delegates, Judges and members of the Press are requested to report themselves at the Secretary's Office immediately on their arrival.

12th. The Judges to meet at the Secretary's Office on the Grounds, on *Wednesday morning*, to Breakfast, at 8 o'clock precisely, to make arrangements for entering immediately upon their duties.

13th. It being essential to the satisfactory working of the Exhibition that all articles be entered and forwarded in reasonable time; all such as arrive on *Wednesday morning* and not previously entered, will be charged an entrance fee of 5s. each. *All entries will positively close on Wednesday morning at 9 o'clock.* Articles arriving afterwards will be admitted into the Show Grounds; but they will be entitled to compete only for *Discretionary premiums*.

14th. Arrangements will be made for Agricultural Lectures or discussions during the evenings of Wednesday and Thursday of the Show week.

15th. Every effort will be made for enabling the Treasurer to commence paying the Premiums *as early as possible*.

The Local Committee will make arrangements with Steamboat and Railway proprietors for the transit of visitors and articles for the Show, at reduced rates; also with the Hotels and Boarding house keepers for accommodating visitors at their ordinary fixed charges.

PRIZE LIST.

CLASS A.—DURHAMS.

Best Bull	£6 10
2d do	4 0
3d do	2 10
4th do	1 10
Best 3 years old Bull	5 10
2d do	3 10
3d do	2 0
4th do	1 0
Best 2 years old Bull	4 10
2d do	3 0
3d do	1 15
4th do	1 0
Best 1 year old Bull	3 10
2d do	2 5
3d do	1 5
4th do	0 15
Best Bull Calf of 1852	2 10
2d do	1 15
3d do	1 0
4th do	0 10
Best Cow	5 0
2d do	3 0
3d do	2 0
4th do	1 0
Best 3 years old Cow	4 0
2d do	2 10
3d do	1 10
4th do	0 15
Best 2 years old Heifer	3 0
2d do	2 0
3d do	1 0
4th do	0 15
Best 1 year old Heifer	2 10
2d do	1 10
3d do	1 0
4th do	0 10
Best Heifer Calf of 1852	1 10
2d do	1 0
3d do	0 10
4th do	0 5

CLASS B.—DEVONS.

Best Bull,	£6 10
2d do	4 0
3d do	2 10
Best 2 years old Bull,	4 10
2d do	3 0
3d do	1 15
Best 1 year old Bull,	3 10
2d do	2 5
3d do	1 5
Best Bull Calf of 1852,	2 10
2d do	1 15
3d do	1 0
Best Cow,	5 0
2d do	3 0
3d do	2 0
Best 2 years old Heifer,	3 0
2d do	2 0
3d do	1 0
Best 1 year old Heifer,	2 10
2d do	1 10
3d do	1 0
Best Heifer Calf of 1852,	1 10
2d do	1 0
3d do	10

CLASS C.—HEREFORDS.

Best Bull,	£6 10
2d do	4 0
3d do	2 10

Best 2 years old Bull,	£4 10	Best Cow or Heifer	£3 0
2d do	3 0	2d do	2 0
3d do	1 15	3d do	1 0
Best 1 year old Bull,	3 10	Best Yoke of Working Oxen	3 0
2d do	2 5	2d do	2 0
3d do	1 5	3d do	1 0
Best Bull Calf of 1852,	2 10	No animal entitled to compete for a Premium in more than one of the foregoing classes.	
2d do	1 15		
3d do	1 0		
Best Cow,	5 0		
2d do	3 0		
3d do	2 0		
Best 2 years old Heifer,	3 0		
2d do	2 0		
3d do	1 0		
Best 1 year old Heifer,	2 10		
2d do	1 10		
3d do	1 0		
Best Heifer Calf of 1852,	1 10		
2d do	1 0		
3d do	10		

CLASS D.—AYRSHIRES.

Best Bull,	£6 10
2d do	4 0
3d do	2 10
Best 2 years old Bull,	4 10
2d do	3 0
3d do	1 15
Best 1 year old Bull,	3 10
2d do	2 5
3d do	1 5
Best Bull Calf of 1852,	2 10
2d do	1 15
3d do	1 0
Best Cow,	5 0
2d do	3 0
3d do	2 0
Best 2 years old Heifer,	3 0
2d do	2 0
3d do	1 0
Best 1 year old Heifer,	2 10
2d do	1 10
3d do	1 0
Best Heifer Calf of 1852,	1 10
2d do	1 0
3d do	0 10

A certificate of pedigree will be required for all the above animals to show that they are either imported thorough-bred stock, or bred in the country from such stock, and the name and residence of the *Breeder* are to be inserted.

CLASS E. 1.—GRADE CATTLE.

Best Cow	£4 0
2d do	2 10
3d do	1 10
Best 3 year old Cow	3 5
2d do	2 5
3d do	1 5
Best 2 year old Heifer	3 0
2d do	2 0
3d do	1 0
Best 1 year old Heifer	2 10
2d do	1 10
3d do	1 0
Best Heifer Calf of 1852	1 10
2d do	0 15
3d do	0 10

A certificate to be produced to show the breeding of animals in Class E. 1.

CLASS E. 2.—FAT CATTLE, ANY BREED.

Best Ox or Steer	£3 0
2d do	2 0
3d do	0

HORSES.

The President's Prize for a Stallion.

T. C. STREET, Esq., M.P.P., anxious to improve the breed of good Horses, in this section of the Province, offers a prize of £30 to the Horse, which shall, by Judges appointed by the Association for the purpose, be pronounced the best, and which shall answer the following description:—Fully 16 hands high; well topped; round in the barrel and deep in the chest; he must have weight in proportion to his size and be a good traveller—such a Horse as would be likely to produce a breed of good Carriage Horses, in which this country seems deficient. To enable any horse to compete for this prize, he must have stood publicly for mares in some part of Upper Canada, during the season of 1852. Competition for this prize not to exclude the exhibitor from any of the ordinary prizes of the Association.

N.B.—Mr. Street, also, offers a prize of £20 for a similar Horse, next year, to be decided at the Annual Exhibition of the Association in 1853. Such a horse must be owned in Canada and have stood an entire season in some part of this section of the Province. The horse that may win the Premium this year, will not be eligible the next. Competitors for this prize will not be ineligible to compete for the usual premiums offered by the Society.

CLASS F.—HORSES, AGRICULTURAL.

Best Stallion for Agricultural purposes,	£7 10
2d do	5 0
3d do	2 10
Best Heavy Draught Stallion,	7 10
2d do	5 0
3d do	2 10
Best 3 year old Stallion,	5 0
2d do	3 0
3d do	1 0
Best 2 year old Stallion,	3 0
2d do	2 0
3d do	1 0
Best 3 year old Filly	4 0
2d do	2 10
3d do	1 0
Best 2 year old Filly,	3 0
2d do	2 0
3d do	1 0
Best Span Matched Carriage Horses,	4 0
2d do	3 0
3d do	1 0
Best span of Draught Horses,	4 0
2d do	3 0
3d do	1 0
Best Brood Mare and Foal, or evidence that the foal has been lost,	5 0
2d do	3 0
3d do	1 0

Best Saddle Horse,	£2 0	Best 2 shearling, Ewes,	3 0
2d do	1 10	2d do	2 0
3d do	1 0	3d do	1 0
CLASS G.—BLOOD HORSES.			
Best thorough bred Stallion,	7 10	Best 2 Ewe Lambs,	1 0
2d do	5 0	2d do	1 10
3d do	2 10	3d do	10
Best thorough bred 3 year old Stallion,	5 0	FAT SHEEP.	
2d do	3 0	Best two Fat Wethers,	3 0
3d do	1 0	2d do	2 0
Best thorough bred 3 year old Filly,	4 0	3d do	1 0
2d do	2 10	Best two Fat Ewes,	3 0
3d do	1 10	2d do	2 0
Best thorough bred 2 year old Filly	3 0	3d do	1 0
2d do	2 0	CLASS I.—PIGS, (LARGE BREED.)	
3d do	1 0	Best Boar, 1 one year and over,	3 0
Best thorough bred Mare and Foal,	5 0	2d do	2 0
2d do	3 0	3d do	1 0
3d do	1 0	Best Breeding Sow, 1 year and over,	3 0
Pedigree to be produced.			
CLASS H.—SHEEP.			
<i>Leicesters.</i>			
Best ram, two shears and over,	£4 0	Best Boar of 1852	2 0
2d do	2 0	2d do	1 10
3d do	1 0	3d do	1 0
Best shearling Ram,	2 10	Best Sow of 1852	2 0
2d do	1 10	2d do	1 10
3d do	15	3d do	1 0
Best 2 Ewes, two shears and over,	4 0	SMALL BREED.	
2d do	3 0	Best Boar, 1 year and over,	3 0
3d do	1 10	2d do	2 0
Best 2 shearling Ewes,	3 0	3d do	1 0
2d do	2 0	Best Breeding Sow, 1 year and over,	3 0
3d do	1 0	2d do	2 0
Best 2 Ewe Lambs,	1 10	3d do	1 0
2d do	1 0	Best Boar of 1852,	2 0
3d do	10	2d do	1 10
SOUTHDOWNS.			
Best Ram, two shears and over,	4 0	3d do	1 0
2d do	2 0	In this class the precise age of the animals is to be stated on the cards.	
3d do	1 0	CLASS J.—POULTRY.	
Best shearling Ram,	2 10	Best pair of Dorking Fowls,	10
2d do	1 10	2d do	5
3d do	15	Best pair of Poland Fowls,	10
Best Ram Lamb,	2 0	2d do	5
2d do	1 10	Best pair of Large Breed fowls,	10
2d do	10	2d do	5
Best Ram Lamb,	2 0	Best pair of Turkeys,	10
2d do	1 0	2d do	5
3d do	10	Best pair Large Geese	10
Best two Ewes, 2 shears and over,	4 0	2d do	5
2d do	3 0	Best Pair Topknot Ducks,	10
3 do	1 10	2d do	5
Best 2 shearling Ewes,	3 0	Best Pair Muscovy Ducks,	10
2d do	2 0	2d do	5
3d do	1 0	Best pair Common Ducks,	10
Best 2 Ewe Lambs,	1 10	2d do	5
2d do	1 0	Best pair Guinea Fowls,	10
3d do	10	2d do	5
MERINOS AND SAXONS.			
Best Ram, two shears and over	4 0	Best lot of Poultry owned by Exhibitor,	10
2d do	2 0	CLASS K., AGRICULTURAL PRODUCTIONS.	
3d do	1 0	<i>The Canada Company's Prize of £25.</i>	
Best shearling Ram,	2 10	For the best 25 bushels of <i>Fall Wheat</i> , the	
2d do	1 10	produce of Canada West, being the	
3d do	15	growth of the year, 1852. The prize to	
Best Ram Lamb,	2 0	be awarded to the actual grower only of	
2d do	1 0		
3d do	10		
Best 2 Ewes, two shears and over,	4 0		
2d do	3 0		
3d do	0		

the Wheat, which is to be given up to, and become the property of, this Association, for distribution to the County Societies for seed.

	£	s.	d.
2d do (by the Association)	10	0	0
3d do	5	0	0

The winners of the 2nd and 3rd premiums will retain the wheat. Exhibitors in this class will be required to state the nature of the soil, mode of preparation, time of sowing, amount of produce per acre, and the kind and quantity of manure applied. Exhibitors in this class will not be allowed to compete for premiums offered for wheat, consisting of two bushels.

Best 2 bushels Winter Wheat,	£2	10	
2d do	1	15	
3d do	1	5	
Best 2 bushels of Spring Wheat,	2	10	
2d do	1	15	
3d do	1	5	
Best 2 bushels Barley,	1	10	
2d do	1	0	
3d do	0	10	
Best 2 bushels Rye,	1	10	
2d do	1	0	
3d do	0	10	
Best 2 bushels of Oats,	1	10	
2d do	1	0	
3d do	0	10	
Best 2 bushels of Peas,	1	10	
2d do	1	0	
3d do	0	10	
Best 2 bushels of Marrowfat Peas,	1	10	
2d do	1	0	
3d do	0	10	
Best 2 bushels Indian Corn in the ear,	1	10	
2d do	1	0	
3d do	0	10	
Best bushel of Timothy Seed,	1	5	
2d do	0	15	
3d do	0	10	
Best bushel of Clover Seed,	1	10	
2d do	1	0	
3d do	0	10	
Best bushel Hemp Seed,	1	0	
2d do	0	15	
3d do	0	10	
Best Bushel Flax Seed,	1	10	
2d do	1	0	
3d do	0	10	
Best bushel Mustard Seed,	1	0	
2d do	0	15	
3d do	0	10	
Best Swedish Turnip Seed, not less than 20 lbs.,	0	15	
2d do	0	10	
3d do	0	5	
Best bale of Hops, not less than 112 lbs.,	2	10	
2d do	1	10	
3d do	1	0	
Best bushel Potatoes,	0	15	
2d do	0	10	
3d do	0	5	
Best bushel Swede Turnips,	0	15	
2d do	0	10	
3d do	0	5	
Best bushel White Globe Turnips,	0	15	
2d do	0	10	
3d do	0	5	
Best bushel Aberdeen Yellow Turnips,	0	15	
2d do	0	10	
3d do	0	5	

Best bushel Red Carrots,	£0	15	
2d do	0	10	
3d do	0	5	
Best bushel White or Belgian Carrots,	0	15	
2d do	0	10	
3d do	0	5	
Best bushel Mangel Wurzel, (Long-red,)	0	15	
2d do	0	10	
3d do	0	5	
Best bushel Yellow Globe Mangel Wurzel,	0	15	
2d do	0	10	
3d do	0	5	
Best 12 roots of Khol Rabi,	0	10	
2d do	0	5	
Best bushel of Sugar Beet,	0	15	
2d do	0	10	
3d do	0	5	
Best bushel of Parsnips,	0	15	
2d do	0	10	
3d do	0	5	
Best 4 largest Squash for Cattle,	0	15	
2d do	0	10	
3d do	0	5	
Best 20lbs. manufactured Tobacco, growth of Canada West,	1	0	
2d do	0	10	
Best Broom Corn Brush, 28 lbs.,	1	0	
2d do	0	15	
3d do	0	10	

The Canada Company's Prize for Flax.

	£	s.	d.
Best 112 lbs of Flax,	6	0	0
2d do [by the Association,]	3	10	0
3d do	1	10	0

The Canada Company's Prize for Hemp.

	£	s.	d.
Best 112 lbs of Hemp,	4	0	0
2d do [by the Association,]	2	10	0
3d do	1	0	0

CLASS L.—HORTICULTURAL PRODUCTS.

Best 20 varieties of Apples, named	£0	15	0
2d do	10	0	
3d do	5	0	
Best 12 Table Apples, named	10	0	
2d do	7	6	
3d do	5	0	
Best 12 Winter Apples, named	10	0	
2d do	7	6	
3d do	5	0	
Best and greatest variety of Pears, named	15	0	
2d do	10	0	
3d do	5	0	
Best 12 Table Pears, named	10	0	
2d do	7	6	
3d do	5	0	
Best 12 Winter Pears, named	10	0	
2d do	7	6	
3d do	5	0	
Best dozen Plums (Dessert) named	10	0	
2d do	7	6	
3d do	5	0	
Best 12 baking Plums, named	10	0	
2d do	7	6	
3d do	5	0	
Best 12 Peaches, grown in hot house,	10	0	
2d do	7	6	
3d do	5	0	
Best 12 Peaches grown in open air	10	0	
2d do	7	6	
3d do	5	0	
Best Collection of Peaches grown in open air	10	0	
2d do	7	6	
3d do	5	0	

Best two Horse Waggon,	£3 0	The cheese in both cases to be the make of 1852.	
2d do	2 0	Best Butter, not less than 20lbs in Firkins, Crocks	£1 10
3d do	1 0	or Tubs,	1 0
Best Horse Cart,	1 10	2d do	0 10
2d do	1 0	2d do	1 0
3d do	0 10	Best 30 lbs Maple Sugar	0 10
Best Horse Rake,	1 0	2d do	0 5
2d do	0 15	3d do	1 0
3d do	0 10	Best 30 lbs Beet Root Sugar,	0 10
Best Metal Roller,	2 15	2d do	0 5
2d do	2 0	3d do	0 15
Best Wooden Roller,	2 10	Best 20lbs Corn Stalk Sugar,	0 10
2d do	1 5	2d do	0 5
Best Reaping Machine,	5 0	3d do	0 15
2d do	3 0	Best Sugar made by Indians	0 10
3d do	2 0	2d do	0 5
Best Stump Extractor,	2 0	3d do	0 15
2d do	1 0	Best Starch	0 10
3d do	0 10	2d do	0 15
Best Mowing Machine,	5 0	Best Soaps [collection assorted]	0 10
2d do	3 0	2d do	0 15
3d do	2 0	Best candles [collection]	0 10
Best Potato Digger,	0 15	2d do	0 15
2d do	0 10		
3d do	0 5		
Best Thistle Extractor,	0 10		
2d do	0 5		
Best Farm Gate,	0 15		
2d do	0 10		
3d do	0 5		
Best Cultivator,	1 10		
2d do	1 0		
3d do	0 10		
Best Machine for making Drain Tiles,	2 10		
2d do	1 10		
Best Brick-making Machine,	2 10		
2d do	1 10		
Best set of Horse Shoes,	0 15		
2d do	0 10		
3d do	0 5		
Best half-dozen Hay Rakes,	0 10		
2d do	0 7		
3d do	0 5		
Best half-dozen narrow Axes,	0 15		
2d do	0 10		
3d do	0 5		
Best half-dozen manure Forks,	0 15		
2d do	0 10		
3d do	0 5		
Best half-dozen Hay Forks,	0 15		
2d do	0 10		
3d do	0 5		
Best half-dozen Scythe Snaiths,	0 15		
2d do	0 10		
3d do	0 5		
Best Ox Yoke and Bows,	0 15		
2d do	0 10		
Best Grain Cradle,	0 10		
2d do	0 5		
Best half-dozen Grain Shovels, wood,	0 15		
2d do	0 10		
3d do	0 5		
Best half-dozen Iron Shovels,	0 15		
2d do	0 10		
3d do	0 5		
CLASS N.—DAIRY PRODUCTS, SUGAR, &c.		CLASS O 1.—DOMESTIC MANUFACTURES.	
Best Firkin of Butter not less than 56lbs.	£2 10	<i>Leather and Furs.</i>	
2d do	1 10	Best Side Saddle	1 0
3d do	1 0	2nd do	0 15
Best cheese not less than 30lbs.	2 10	Best Specimen of Whips and Whip Thongs	1 10
2d do	1 10	[collection assorted]	0 15
3d do	1 0	2d do	1 0
Best 2 Stilton cheese not less than 14 lbs each	2 10	Best 3 Hogskins,	0 10
2d do	1 10	2d do	1 10
3d do	1 0	Best set of Farm Harness	1 0
		2d do	0 10
		3d do	1 10
		Best set of Pleasure Harness	1 0
		2d do	0 10
		3d do	1 0
		Best Saddle and Bridle	0 15
		2d do	1 10
		Best Travelling Trunk	0 10
		2d do	0 5
		3d do	0 10
		Best side of Sole Leather	0 15
		2d do	0 15
		3d do	0 15
		Best side of Upper Leather	0 10
		2d do	0 5
		3d do	0 15
		Best Skirting Leather	0 10
		2d do	0 5
		3d do	0 15
		Best Calf Skin, Dressed	0 10
		2d do	0 5
		3d do	0 15
		Best Side of Harness Leather	0 10
		2d do	0 5
		3d do	0 15
		Best Fur Hat	0 10
		2d do	0 5
		3d do	0 15
		Best Fur Cap	0 10
		2d do	0 5
		3d do	0 15
		Best Fur Sleigh Robe	0 10
		2d do	0 5
		3d do	0 15
		Best specimen Bootmaker's work	0 10
		2d do	0 5
		3d do	
		O 2.—MANUFACTURES IN METAL, &c.	
		Best Portable Steam Engine, [open to foreign	
		competition] Diploma, and	5 0

Best Model in metal of Engine, general millwright's work or machinery, Diploma, and	2 0	Best Centre Table,	1 0
2d do	1 0	2d do	0 15
Best Specimen of Silversmith's work, Diploma, and	2 0	3d do	0 10
Do Ornamental Iron-work from the hammer, Diploma, and	1 10	Best Dining Table,	1 0
Do Cast Ornamental Iron-work, Diploma, and	1 10	2d do	0 15
Do Coppersmith's work, Diploma, and	1 0	3d do	0 10
Do Locksmith's work, Diploma, and	1 0	Best Easy Arm Chair,	0 15
Do Pumpmaker's work, Diploma, and	1 0	2d do	0 10
Best Iron Fire-proof Vault Door [price considered] Diploma and	2 0	3d do	0 5
Best Iron Fire-proof Safe, [price considered] Diploma and	1 10	Best Sofa,	3 0
Best Refrigerator [price considered] Diploma, and	1 0	2d do	1 10
Best Cooking Stove with furniture	1 10	3d do	1 0
2d do	1 0	Best 6 Dining Room Chairs,	1 5
3d do	0 10	2d do	1 0
Best Parlor Stove	1 0	3d do	0 15
2d do	0 10	Best Ottoman,	1 0
2d do	0 5	2d do	0 15
Best System of Ventilating buildings, with model and description, Diploma, and	2 0	3d do	0 10
2d do	1 0	Best Work Box,	0 10
Best Balance Scales	1 0	2d do	0 5
2d do	0 15	Best Writing Desk,	0 10
3d do	0 5	2d do	0 5
Best Model Hot Air Apparatus	1 10	Best 1 Horse Pleasure Carriage,	2 0
2d do	0 15	2d do	1 10
Best Steaming Apparatus for Feeding Stock	1 10	3d do	0 10
2d do	1 0	Best 2 Horse Pleasure Carriage,	2 0
Best set of Cooper's Tools	0 15	2d do	1 10
2d do	0 10	3d do	0 15
Best Set of Bench Planes	0 15	Best half-dozen Corn Brooms,	£0 10 0
2d do	0 10	2d do do	0 5 0
Best pair of Hames	0 10	Best dozen Broom Handles turned,	0 10 0
2d do	0 5	2d do do	0 5 0
Best Saddle tree	0 10	Best specimen Willow Ware,	0 10 0
2d do	0 5	2d do do	0 5 0
Best Weaver's Reeds	0 10	Best dozen Flour barrels,	1 0 0
2d do	0 5	2d do	0 10 0
Best Augurs from $\frac{1}{2}$ to 2 inches.	0 10	Best Wooden Pail,	0 5 0
2d do	0 5	2d do	0 3 9
Best Earth Augur	0 10	Best Wash Tub,	0 7 6
2d do	0 5	2d do	0 5 0
Best specimen 20 lbs Cut Nails	0 10	Best Washing Machine,	0 10 0
2d do	0 5	2d do	0 5 0
Best Blacksmith's Bellows	1 5	Best Board Rule,	0 10 0
2d do	0 15	2d do	0 5 0
Best Rifle	0 15	Best Spinning Wheel,	0 10 0
2d do	0 10	2d do	0 5 0
		Best dozen Wheel Heads,	0 15 0
		2d do	0 10 0
		Best Churn,	0 15 0
		2d do	0 10 0
		Best 4 or 6 Pannelled Door,	0 15 0
		2d do	0 10 0
		3d do	0 5 0
		Best Window Sash, 12 lights, hung in frame,	0 15 0
		2d do	0 10 0
		3d do	0 5 0
		Best Model Beehive,	0 10 0
		2d do	0 5 0
		Best Bundle Shingles sawed,	0 10 0
		2d do do	0 5 0
		Best do do split,	0 10 0
		2d do do	0 5 0
		CLASS Q.—WOOLLEN AND FLAX GOODS.	
		Best piece of not less than 12 yards of Woollen Carpet,	£2 0
		2d do	1 0
		3d do	0 10
		Best 12 yards, or over, Oil Cloth,	1 0
		2d do	0 10
		3d do	0 5
		Best pair of Woollen Blankets,	2 0
		2d do	1 0
		3d do	0 10

CLASS. P.—CABINETWARE, CARRIAGES, &c.

Best Side Board,	£3 0
2d do	2 0
3d do	1 0
Best Veneers from Canadian Wood,	1 0
2d do	0 15
3d do	0 10
Best specimen of Sawed Pine,	0 10
do Black Walnut,	0 10
do Oak,	0 10
do Curled Maple,	0 10
do Butter-nut,	0 10
In planks not less than 6 feet long, 12 inches wide, and 2 inches thick, one side plain [not varnished] the other rough.	
Best specimen of graining wood,	1 10
2d do	1 0
sd do	0 10

Best Counterpane,	1 0	Best specimen of Quilts,	1 5 0
2d do	0 15	2d do	1 0 0
3d do	0 10	3d do	15 0
Best piece 12 yards Flannel,	1 0	Best specimen of Gentlemen's shirts,	15 0
2d do	0 15	2d do	10 0
3d do	0 10	3d do	5 0
Best piece Satinet, 12 yards,	1 0	Best pair Woollen Mittens,	10 0
2d do	0 15	2d do	7 6
3d do	0 10	3d do	5 0
Best piece Broad Cloth, from Canadian		Best pair Woollen Gloves,	10 0
Wool,	2 0	2d do	7 6
2d do	1 0	3d do	5 0
4d do	0 10	Best Hat of Canadian Straw,	10 0
Best piece Flannel, 10 yards, not factory		2d do	7 6
made,	0 15	3d do	5 0
2d do	0 10	Best Bonnet of Canadian Straw,	10 0
3d do	0 5	2d do	7 6
Best piece Winter Tweed 12 yards,	1 0	3d do	5 0
2d do	0 15		
3d do	0 10		
Best piece Fulled Cloth, 10 yards not factory			
made,	0 15		
2d do	0 10		
3d do	0 5		
Best Shawls, not Factory made,	0 15		
2d do	0 10		
3d do	0 5		
Best piece Linen Goods,	0 15		
2d do	0 10		
3d do	0 5		
Best samples of Flax or Hemp Cordage, not			
less than 28lbs.	0 15		
2d do	0 10		
3d do	0 5		
12 best Linen Bags manufactured from Flax			
growth of Canada,	1 0		
2d do	0 15		
3d do	0 10		

CLASS S.—FINE ARTS, &c.

In Oil.

	Professional List.	Amateur List.
Historical painting, Canadian subject,		
Diploma and	£3 0	£2 10
2d best.....	2 0	1 10
Landscape, Canadian subject, Diplo-		
ma and	3 0	2 10
2d best.....	2 0	1 10
Animals, (grouped or single) Diplo-		
ma and	3 0	2 10
2d best.....	2 0	1 10
Portrait—Diploma and.....	2 10	2 0
2d best.....	1 10	1 0

In Water Colors.

Landscape, Canadian subject, Dip &	2 10	2 0
2d best.....	1 10	1 0
Portrait, Diploma and	2 0	1 10
2d best.....	1 0	1 0
Animals, (grouped or single) Dip. &	2 10	2 0
2d best.....	1 10	1 0
Miniature, Diploma and.....	2 0	1 10
2d best.....	1 10	1 0
Flowers, Diploma and	1 10	1 0
2d best.....	1 0	0 15

Pencil and Crayon.

Pencil Portrait, Diploma and	1 10	1 0
2d best	1 0	0 15
Crayon Portrait, Diploma and.....	1 10	1 0
2d best	1 0	0 15
Pencil Drawing, Diploma and.....	1 10	1 0
2d best	1 0	0 15
Crayon Drawing, Diploma and.....	1 10	1 0
2d best	1 0	0 15
Colored Crayon, Diploma and	1 10	1 0
2d best	1 0	0 10
Best specimen of Colored Geometrical drawing		
of Engine or Millwright work. Dip		2 0
Daguerreotype best collection, the exhibitor to		
have operated in Canada West for the last		
12 months, Diploma and		1 10
2d best,		1 0
Lithographic drawing unprinted, Diploma and		1 10
2d best.....		1 0
Wood engraving, Diploma and.....		1 10
2d best.....		1 0
Engraving on Copper, Diploma and.....		1 10
2d best.....		1 0
Engraving on Steel, Diploma and.....		1 10
2d best.....		1 0

CLASS R.—LADIES' DEPARTMENT.

Best specimen of Crochet Work,	£1 0 0
2d do	15 0
3d do	10 0
Best specimen of Woollen or Cotton Netting	15 0
2d do	10 0
3d do	7 6
Best specimen of Fancy Netting,	15 0
2d do	10 0
3d do	7 6
Best specimen of Fancy Knitting,	15 0
2d do	10 0
3d do	7 6
Best specimen of Embroidery,	1 0 0
2d do	15 0
3d do	10 0
Best specimen of Worsted Work,	15 0
2d do	10 0
3d do	7 6
Best specimen Raised Worsted Work,	1 0 0
2d do	15 0
3d do	10 0
Best specimen of Wax Fruit,	15 0
2d do	10 0
3d do	5 0
Best specimen of Wax Flowers,	15 0
2d do	10 0
3d do	5 0
Best specimen of Wax Figures,	15 0
2d do	10 0
3d do	5 0
Best Pair Woollen Socks,	10 0
2d do	7 6
3d do	5 0
Best pair of Woollen Stockings,	10 0
2d do	7 6
3d do	5 0

Best specimen of Seal Engraving, Diploma &	2	0
Do. do. Carving in Wood, Diploma &	2	0
Do. do. do. Stone, Diploma &	2	0
Do. Modelling in Plaster, Diploma &	2	0
Do. Ornamental Turning, Diploma &	1	0
Ornamental Writing, Diploma and	1	0
2d best.	0	10
Stuffed Birds	1	0
2d do.	0	10
Picture Frame, gilt.	1	0
2d do.	0	10
Picture Frame, veneered	1	0
2d best	0	10
Stucco Moulding	1	0
2d do.	0	10
Stained Glass,	1	0
2d do.	0	10
Dentistry, Diploma and	1	0
2d do.	0	10

All articles exhibited by *Ladies* to be admitted free
 All articles entered must have been executed since
 the last Exhibition of this Association.

CLASS T.—BOOKBINDING, PAPER, &c.

Best specimen Bookbinding,	£1	0
2d do.	0	15
3d do.	0	10
Best ream of Writing Paper	1	0
2d do.	0	15
3d do.	0	10
Best ream of Printing Paper.	1	0
2d do.	0	15
3d do.	0	10
Best specimen Letter-Press Printing, executed since last Exhibition,	2	10
2d do.	1	10
3d do.	1	0

CLASS U.—INDIAN PRIZES.

Best Bark Canoe,	£1	10
2d do.	0	10
Best 4 Paddles,	0	15
2d do.	0	5
Best Indian Cradle,	0	15
2d do.	0	10
Best pair Snow Shoes, (common size).	0	15
2d do.	0	10
Best pair Snow Shoes, (8 inches long).	0	10
2d do.	0	5
Best Tobacco Pouch worked with Porcupine Quills	0	5
2d do.	0	3
Best Pipe of Peace	0	15
2d do.	0	10
Best Pipe of War	0	15
2d do.	0	10
Best pair of Moccasins (plain).	0	5
2d do.	0	3
Best pair Moccasins [worked with Porcupine Quills]	0	7
2d do.	0	5
Best pair Moccasins [worked with Beads]	0	7
2d do.	0	5
Best Fruit Basket.	0	7
2d do.	0	5
Best Clothes Basket	0	7
2d do.	0	5
Best Hand Basket.	0	7
2d do.	0	5

All articles exhibited by Indians, admitted free.

CLASS V.—POTTERY.

Best specimen of Pottery,	£1	0
2d do.	0	15
3d do.	0	10
Best specimen draining Tile	1	0
2d do.	0	15
3d do.	0	10
Best dozen Bricks	0	10
2d do.	0	5
Best Water Filter.	0	15
2d do.	0	5

CLASS W.—FOREIGN STOCK AND IMPLEMENTS.

Premiums for Stock and Implements belonging to
 persons residing out of *Upper Canada*. Exhibitors in
 this class are admitted free of any charge.

Best Durham Bull not over five years,.....Diploma and.....	£2	10
2d do	2	10
Best Durham Cow.....Diploma and	1	10
2d do	1	10
Best Ayrshire Bull.....Diploma and	2	10
2d do	2	10
Best Ayrshire Cow.....Diploma and	1	10
2d do	1	10
Best Hereford Bull.....Diploma and	2	10
2d do	2	10
Best Hereford Cow.....Diploma and	1	10
2d do	1	10
Best Devon Bull.....Diploma and	2	10
2d do	2	10
Best Devon Cow.....Diploma and	1	10
2d do	1	10
Best Stallion for Agricultural purposes, Diploma and	3	0
2d do	3	0
Best Blood Stallion.....Diploma and	3	0
2d do	3	0
Best Leicester Ram.....Diploma and	1	10
2d do	1	10
Best two Leicester Ewes.....Diploma and	1	10
2d do	1	0
Best Southdown Ram.....Diploma and	1	10
2d do	1	0
Best two Southdown Ewes.....Diploma and	1	10
2d do	1	0
Best Merino and Saxon Ram.....Diploma and	1	10
2d do	1	0
Best two Merino or Saxon Ewes..Diploma and	1	10
Best Boar.....Diploma and	1	10
2d do	1	0
Best Breeding Sow.....Diploma and	1	10
2d do	1	0

AGRICULTURAL IMPLEMENTS.

Best Plough.....Diploma and	£1	0
" Subsoil Plough.....Diploma and	1	0
" pair Harrows.....	1	0
" Fanning Mill.....Diploma and	1	0
" Horse Power Thrasher and Separator Diploma and	2	10
" Seed Drill or Barrow,.....Diploma and	1	0
" Straw Cutter.....	1	0
" Smut Machine.....	1	0
" Portable Grist Mill,.....Diploma and	2	10
" Grain Cracker.....	1	10
" Machine for Cutting Roots for Stock....	1	0
" Corn and Cob Crusher.....	1	0
" Clover Machine.....Diploma and	2	0
" Reaping Machine.....Diploma and	2	10
" Cultivator.....Diploma and	1	5
" Assortment of Agricultural Implements and Edge Tools.....Diploma and	5	0

PREMIUMS

FOR AGRICULTURAL REPORTS OF COUNTIES IN UPPER CANADA, FOR 1853. OPEN TO GENERAL COMPETITION.

For the best County Report (Wellington and Hastings excepted)				£20	0	0
2d	Do.	-	-	15	0	0
3d	Do.	-	-	10	0	0
4th	Do.	-	-	5	0	0

These Reports, in addition to the usual information required respecting the condition of Agricultural Societies within their range, should describe the various soils of the County; modes of Farming; value of land; amount of tillage and average of crops; breeds of live stock; implements and machines in use; methods of preserving and applying manures; sketch of past progress, with suggestions for further improvement. The manufacturing and commercial condition and capabilities of the County should likewise be stated, together with any other facts that would illustrate its past history or present condition.

All statistical information should be condensed as much as possible, and when practicable, put into a tabulated form. The main object of each report should be to afford any intelligent stranger that might read it, a concise, yet an *adequately truthful* view of the Agricultural condition and *Industrial pursuits* of the County. While all unnecessary particulars are to be avoided in the preparation of these Reports, *completeness* should as much as possible, be constantly kept in view.

The Reports must be sent in to the Secretary of the Board of Agriculture, accompanied by a sealed note containing the name and address of the writer, *on or before the 1st of April, 1853*; and no report will be received after that date. Such reports as obtain premiums will become the property of the Board.

BUTCHERS' PRIZES FOR FAT CATTLE.

The Butchers' of Toronto offer the two following prizes, to be awarded by Judges appointed by the Association, at the next Exhibition; viz:—

	£	s.	d.
Best fat Ox or Steer, - -	10	0	0
2nd do. - - -	5	0	0

N. B.—Exhibitors can compete for the above prizes, and likewise for those offered for Fat Stock by the Association.

SALE OF STOCK.

Parties attending the Exhibition having Stock to dispose of, can have entries made of the same in the Books of the Society, free of charge, by applying at the Secretary's Office, where those desirous of becoming purchasers can inspect the list.

FARMERS AND STOCK BREEDERS.

Will bear in mind that L. G. Morris' third Annual Sale of Domestic Animals will come off

at Mount Fordham, on the 9th of June, at 12 o'clock, A. M. The sale, and all transactions connected therewith, will take place at the *Farm House*.

The Agriculturist.

TORONTO, JUNE, 1852.

PROVINCIAL AGRICULTURAL ASSOCIATION.

We invite the special attention of our readers to the List of Premiums for the present year, contained in previous pages. A number of new prizes have been added to the list; and although it is wholly impracticable to include every article that may be exhibited and deemed worthy of a reward, yet it is expected that the hitherto large amount of extra or discretionary prizes, which have occasioned much inconvenience in former years, will hereafter be kept within narrower limits.

The munificent prize offered by our much esteemed PRESIDENT, with the patriotic view of improving the breed of *Horses*, for general purposes; together with those announced by THE CANADA COMPANY for *Wheat, Flax, and Hemp*;—articles for the production of which, the soil and climate of Canada are peculiarly adapted, will, we trust, so awaken public attention as to induce an extensive and spirited competition. *Swine* have been arranged under two great natural divisions, the Large and the Small breeds, and the amount of premiums to this important branch of farmers' live stock, has been consequently doubled. Several additions have likewise been made to the Mechanical department, in which the forthcoming Exhibition is expected to be particularly instructive and extensive. In the *Fine Arts*, too, it will be seen that an *Amateur's List* has been adopted;—an arrangement much needed, and which cannot fail to render this hitherto interesting department, yet more attractive.

The Directors have abolished the usual *Entry fees*, so that members of the Association can hereafter exhibit as many articles as they choose, without any additional charge. The *Ploughing Match*, too, is to be discontinued, as it has hitherto been found on these occasions to occupy a very subordinate place, and to have been com-

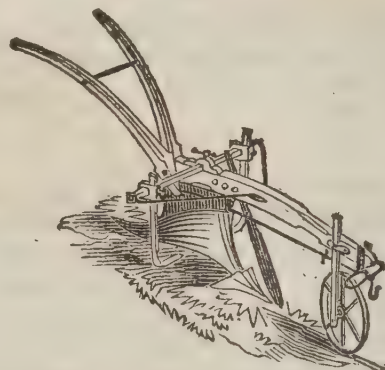
paratively neglected. It must not be inferred from this change that the Directors are insensible to the great importance of good ploughing in any system of improved husbandry, but they think the object can be much more effectually accomplished by *County Ploughing matches*, and devoting a whole day exclusively to the exercise of the ploughman's skill and the judgment of the spectator.

The total amount of the Prize List is little short of £1500, exclusive, of course, of extra or discretionary premiums, which always amount to a considerable sum. To enable the Directors to sustain the Association and increase its usefulness, the aid of individuals, as well as Agricultural societies and public bodies, is most respectfully and urgently solicited. We hope to be able, in our next publication, to report progress, both in reference to subscriptions and the arrangements of the Local Committee, who, we are sure, will devote their best energies to the work they have undertaken; and we trust that the citizens of Toronto will not be wanting on this national occasion, in their characteristic public spirit, sustained, as no doubt they will be, by the country at large.

As the annual Exhibition of the Association has now been held in all the principal cities and towns situated on the shores of Lake Ontario and the St. Lawrence, and is again returning to the point from which it originally started, gaining, upon the whole, strength and usefulness in its progress, it is much to be desired that no effort should be spared to make the next exposition of Canadian Industry and Enterprise still more worthy of our young and rapidly improving country, and the no less rapidly advancing City of Toronto. The eyes of the great neighbouring Republic,—our friendly and pushing rivals in the race,—as well as those of British America, will be upon us. We therefore urgently call upon Farmers, Mechanics, Manufacturers, Horticulturists, Artists, &c., to unite with a determination of purpose worthy of a great national object, to make the next Exhibition what all true friends of their country must ardently desire, viz., *as full and perfect an exposition of our industrial progress and social civilization as possible*. In this connection the invaluable aid of the LADIES of Canada is earnestly invoked;—an aid which, on all previous occasions, has been cheerfully given, and has rendered certain departments of our Exhibitions so highly graceful and attractive.

We will close these few remarks by again entreating all classes of our young community to do what they can towards carrying out the valuable objects of this great and patriotic undertaking;—reminding them of the desirableness of commencing and completing their pre-

parations in *proper time*, and of leaving nothing to the last moment that can be better and more satisfactorily done before.



UNIVERSAL PLOUGH.

The forms and varieties of Ploughs are getting almost endless, and many alterations in, and additions to, this most important Agricultural Implement, daily experience shows to be anything but improvements. Still, upon the whole, the construction of ploughs has of late years, like other mechanical inventions, been very much advanced, and the implements have become both lighter in draught and more effective in working.

The above cut represents a Plough, manufactured by Messrs. Barrett & Exall, of Reading, in England, that has been highly spoken of in several quarters where it has been used. It is said to be a very useful as well as economical implement; having, as the cut shows, one wheel, and by the application of a right handed mould-board, it forms an expanding *earthing up* Plough; and by removing both mould-boards and attaching a bar to the beam, and two hoes, [which are supplied with it,] it forms a good *horse hoe*. Three important implements may thus be combined in one, which is a matter of economical consideration in these days of improved tillage and cheap produce. This plough we should think would form a useful appendage to the implements of the Canadian farmer. The price in England is £4 sterling.

FOOT ROT.

This disease has been the dread and scourge of farmers everywhere, and has been the means of discouraging a great many from growing wool. It has also been the fruitful source of any quantity of quackery. We will engage to cure every sheep in the Union and warrant them for twenty-five cents per head.

Take about four ounces of the *sulphate of copper*, or as it is known at the shops *blue vitrol*, dissolve in a quart of rain water. Cuttle your affected sheep, pare the hoof away from all the part affected; be sure of that, even if it takes it all off. Then apply the solution to every part of the foot, carefully and thoroughly. If well done, the cure is perfected.—About a week after examine the foot, lest you may not have thoroughly pared off all the hoof from the affected part. The sheep ought to be kept in a dry pasture for a week or so after the application.—*Wool Grower*.



THE SHEPHERD'S DOG, OR COLLEY.

The genuine original Shepherd's dog is now nearly altogether confined to Scotland, where he is called the "Colley." He stands about twenty-one inches in height at the shoulder; is very gracefully shaped; muzzle pointed; ears half erect; coat long, but fine and silky; tail and hams fringed with hair; colour usually black and tan, or sandy yellow.

This animal is remarkable for his sagacity; and his disposition to tend sheep appears to be inherent and hereditary. The late lamented Hogg, better known as the "Ettrick Shepherd," had a dog of this breed, named *Sirrah*, to whom, from his extraordinary intelligence, one would almost be disposed to allow the possession of reason. Mr. Hogg has immortalized his favourite; and, perhaps, the following anecdote may not prove uninteresting to the reader:

On one night, a large flock of lambs that were under the shepherd's charge, startled at something, scampered away in three different directions across the hills, despite his efforts to keep them together. "Sirrah," said the shepherd, "they're awa!"

It was too dark for dog and master to see each other at any distance apart; but "Sirrah" understood him, and set off after the fugitives. The night passed on, and Hogg and his assistant traversed every neighbouring hill in anxious but fruitless search, but could hear nothing of either lambs or dog; and he was returning to his master with the doleful intelligence that his charge were lost. "On our way home, however," says he, "we discovered a lot of lambs at the bottom of a deep ravine, called the 'Flesh Cleuch,' and the indefatigable Sirrah standing

in front of them, looking round for some relief, but still true to his charge."

Mr. W. Kidd, who has been supplying the *Gardener's Chronicle* with a series of articles on the instinct of birds and animals, writes, "Of the dog we can all be eloquent; and I can relate 'true anecdotes' of some of my canine friends that would hardly be credited. Still, with all my success in teaching dogs to do marvellous things, *I never could teach them that when they jumped up with dirty feet there was an injury done to my clothes.* When they obeyed the command of 'Down, sir!' now and then enforced by a gentle *coup de main*, they could never reason about the 'why and because.' Nor have I ever yet met with any dog, or ever heard of any dog, that could be 'argued with' on these moral proprieties and observances. Talking of the memory of dogs, one of mine, Dash by name, was once stolen from me. After being absent eighteen months, he one day entered my office in town with a long string tied round his neck. He had broken away from the fellow who held him prisoner. Our meeting may be imagined. I discovered the thief, had him apprehended, and took him before a Magistrate. He swore the dog was his, and called witnesses to bear him out. 'Mr. Kidd,' said Mr. Twyford—I see him now—addressing me, 'Can you give us satisfactory proof that the dog is your property?' Placing my mouth to the dog's ear, first giving him a knowing look, and whispering a little masonic communication, known to us two only, Dash immediately reared upon his hind legs, and went through a series of gymnastic manœuvres with a stick, guided meanwhile by my eye, which set the whole Court in a roar. My evidence needed no further corroboration; the thief stood committed; Dash was liberated; and amidst the cheers of the multitude we bounded merrily homewards."

HEREFORD BULL.

We present our readers this month with a cut, copied with great fidelity from an excellent Steel Engraving in the March number of *The Farmer's Magazine*, of the Hereford Bull, "*Walford*," the property of the Right Hon. Lord Berwick, of Cronkhill, near Shrewsbury, bred by Mr. Thomas Longmore, of Walford, near Ludlow, to which the first prize of 40 sovereigns was awarded at the Royal Agricultural Society's Show, held at Windsor, in July 1851.

In September, 1849, at the Ludlow Agricultural Society's Meeting, "*Walford*" was the winner of the premium for Bulls, having been shown with four of his offspring under one year old. In September, 1850, at Ludlow he won the Sweepstakes, with Twenty Sovereigns added by the Ludlow Agricultural Society for Stock Bulls which Sweepstakes were open to all England.

"*Walford*" is by the same sire as the Hereford Ox, the property of Mr. Edward Longmore, of Adfordton, near Ludlow, which obtained the first prize of Thirty Sovereigns and Silver Medal at the Smithfield Cattle Show in December last.

A FEW GENERAL REMARKS ON HEREFORD CATTLE.

We embrace the present opportunity of stating a few facts and observations on this interesting and important breed of Cattle. Its origin, like many other things, it is now impossible to ascertain, and its earlier history is exceedingly difficult to trace. The probabilities however are that the present distinct and characteristic breed of cattle, which almost exclusively occupy the County of Hereford, and which have been slowly but progressively extended to other districts, originated from improvements made on the native breeds of cattle, which were originally spread over that fertile and beautiful tract of country, lying along the base of the Welsh mountains.

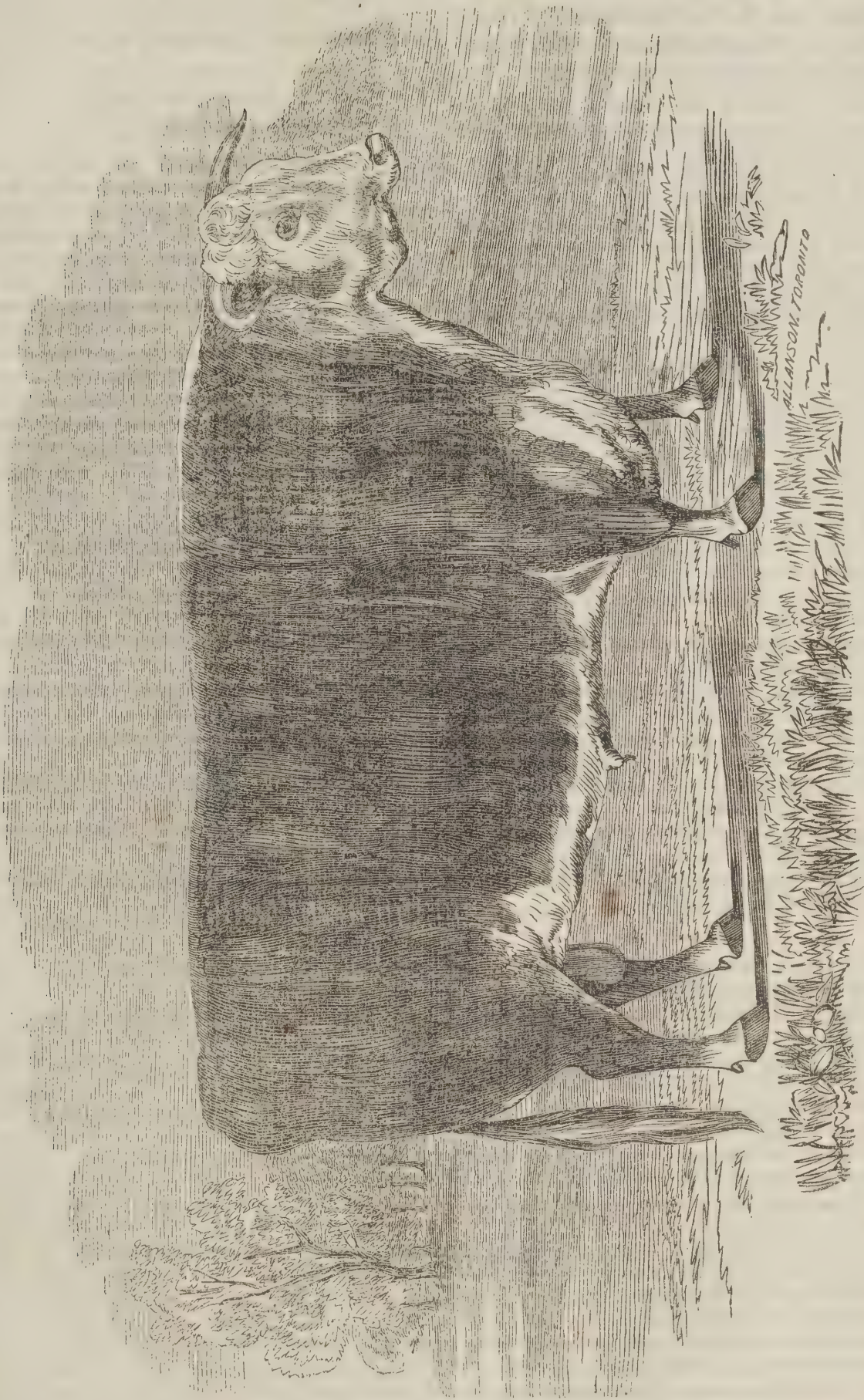
The general characteristic of this breed at the present day as regards colour, is a light or dark red, with white faces,—a color that is often found, more or less, on the neck, along the back and the under parts of the body. The old Herefords were of a reddish brown without any white whatever; and there are yet to be found families of this breed possessing the same characteristics. At what period white faces were introduced is not exactly known, but they have not constituted a mark of what may be called the improved or modern type of Herefords, for a much longer period than half a century. The horns are of a medium length, well spread: sometimes, however, quite short in Bulls; the forehead broad, the expression of the countenance mild and pleasing, with an usually deep, broad chest. In the form of the shoulders many judges consider this breed to excel all others, and when well fattened, but little coarse meat is found about that part. The hips, loin and rump are generally good, with perhaps, ribs less springing than most other breeds. In all the improved families oxen come to early maturity, and readily lay on fat. Steers are usu-

ally sold in Smithfield at two years old, and the beef is exceedingly well mottled and esteemed of excellent quality. The Hereford cow has generally been regarded as of inferior size, possessing little beauty of form, and yielding but a small amount of milk. In their native county they have been kept for breeding rather than the dairy, but where proper attention has been paid to the latter condition, there have been several instances of Herefords making good milkers, and of the other defects referred to having been corrected.

How far this breed would be adapted to the climate, pastures and markets of Canada, remains to be proved. We think it well worth a full and an impartial trial. We are among those who believe that Providence in its wisdom and goodness, has ordained varieties in the animal, as well as vegetable world, adapted to the varying conditions of the earth's climate and surface, and of the wants of man, to whose intelligence and industry belongs the power of greatly modifying those varieties, and thus better adapting them to his purposes. As yet we have no Herefords in the country worth mentioning, and it will be no easy thing to displace the Durhams; at least where ordinary attention has been paid to the breeding of the latter. We see no good reason, however, why these two distinguished breeds should not run quietly, side by side, in a friendly race of competition; much to the satisfaction of their respective owners, and the improvement of this important department of the wealth and rural economy of the country.

We shall close these few remarks with a quotation from Professor Low; than whom a better qualified or more unprejudiced authority, it would not be easy to cite:—

"The Hereford breeders naturally set a high value upon their breed. They esteem it to be the finest in England. It has, indeed, many excellent properties for the grazier; but the general judgment of the breeders has long been pronounced in favor of another breed, likewise perfected by the skill of the breeder—the short-horned Teeswater, or, as it is now frequently termed, *the Durham Breed*. This has for many years been progressively extending, and been carried even within the native districts of the Herefords. The Herefords will frequently pay the graziers better than the Durhams; but the value of a breed is to be determined not by the profit which it yields between buying and selling, but by that which it yields to the breeder and the feeder conjointly from its birth to its maturity; and taking into account the early maturity of the Short-horns, and the weight to which they arrive, it may without error be asserted that they merit the preference which has been given to them. The two breeds have been sometimes crossed with one another; but, although fine animals are produced by a first cross, the future progeny rarely equals the parents of pure blood. Unless, therefore, the Herefords were to be crossed until they became short-horns, the proper course seems to be to preserve the two breeds in a state of purity, the breeder and the grazier contenting themselves with the excellencies which each has acquired."



IMPORTANT PRECAUTION IN MILKING COWS.

We find in a recent report of the proceedings of the Council of the Royal Agricultural Society of England, the following communication of T. L. Hodges, Esq., M. P., the perusal of which will not be devoid of interest, and useful, practical suggestions, to many of our readers.

"I regret extremely that I cannot possibly be present at the Council to-morrow, when the very interesting subject of Dairy Management will be again under consideration. If I could have been present, I should have mentioned a fact that I believe is little known. I forget the name of the party, but a dairyman who occupies an establishment built by Lord Bristol, at Kemp Town, Brighton, and who keeps 50 to 60 cows for dairy purposes constantly under that roof, has in one or two places where these cows are milked, cisterns with fresh water running into them, and provided also with soap and towels, in order that the men who milk the cows may wash their hands after milking each cow; because these men found that where any cow's teats were diseased, though at first so slightly as not to be perceivable, they nevertheless carried the infection on their hands and inoculated other cows. Now, in order to make this serious inconvenience, which gives the men so much trouble to cure, impossible, they very willingly obey this order to wash their hands; and there is another reason for their doing so, because in warm weather their hands often perspire, and the milk frequently coming in contact with their damp hands, it becomes tainted in consequence. With regard to the form of the milk pans, there cannot be a doubt that sides as nearly upright as possible must cause the largest amount of cream: the depth of the milk is a matter easily determined by observation, because the weather, the nature and quantity of the fodder, and the breed of the animals, may prevent, I should think, any precise rule on this head being laid down."

FACTS ABOUT MILK.—Cream cannot rise through a great depth of milk. If, therefore, milk is desired to retain its cream for a time, it should be put into a deep, narrow dish; and, if it be desired to free it most completely of cream, it should be poured into a broad, flat dish, not much exceeding one inch in depth. The evolution of cream is facilitated by a rise, and retarded by a depression of temperature. At the usual temperature of the dairy—50 degrees Fahrenheit—all the cream will probably rise in thirty-six hours; but at 70 degrees, it will, perhaps, rise in half that time; and, when the milk is kept near the freezing point, the cream will rise very slowly, because it becomes solidified. In wet and cold weather, the milk is less rich than in dry and warm; and, on this account, more cheese is obtained in cold than in warm, though not in thundery weather. The season has its effects. The milk, in spring, is supposed to be best for drinking, and hence it would be best suited for cheese; and, in autumn,—the butter keeping better than that of summer,—the cows less

frequently milked give richer milk, and, consequently, more butter. The morning's milk is richer than the evening's. The last drawn milk of each milking, at all times and seasons, is richer than the first drawn, which is the poorest.

TOWNSHIP OF HAMILTON FARMERS' CLUB.

DRILL HUSBANDRY.

From the Cobourg Star.

[CONCLUDED FROM OUR LAST.]

MR. BOURN said there was one thing with regard to turnips—he would advise Mr. Wright to be cautious how he tried the turnip on the level of his land; he had tried them and found that they took too much labour that way—far more than in drills, and that the weeds even when out, almost smothered them. He thought that sowing grain with the drill would not answer in all cases, as a great part of our seeds was sown along with the spring wheat, and people could not horse hoe where the grass seed was sown, and he thought the greatest part of the advantage of the drill was lost, if we did not follow up with the horse hoe.

MR. WADE, in summing up, said, that although the subject of Drill Husbandry might in some measure seem a hacknied one, after its almost universal adoption in Great Britain and many other countries in the old world, yet from its very partial trial in our country, its discussion may be to us a matter of considerable importance. And he would beg leave to congratulate the club, not only for the interest manifested, but also for the very satisfactory way in which the subject had been handled. Mr. Wright had most ably introduced the topic by an elaborate essay embracing most of the prominent points of advantage, which drilling obtains over broad-cast sowing. He however confines himself more particularly to green crops, as he candidly states that his own individual practice has been confined principally to that part of the subject. He, however, from his somewhat unsuccessful attempts, in cultivating the turnip, upon the drilled or ridged surface, thinks it would be better to sow in rows upon the level one. Mr. Wright's opinion is however called in question by Mr. Bourn and others, admitting it to be an advantage in the retention of moisture, a difficulty arises in the management of the crop, should the plants be drilled on the level surface, as by hoeing out the weeds from the rows, and thinning out the plants, a ridge accumulates between each row making it difficult to run the horse hoe between, without smothering or burying the turnip. He was also of Mr. Bourn's opinion, and considered that Mr. Wright upon trial, would find that the level surface would not be of the advantage he might suppose. Although it might seem by raising the surface into ridges, the soil would be more exposed to the sun as it certainly was, yet it is also a fact that the greater the depth of pulverized soil below the plants, the less it suffers from drought. And as there were so many counteracting principles in nature, it behoved every man engaged in Agriculture, before he departed from the general

practice, on account of his own non-success to weigh the subject in all its bearings.

It is well known that moisture is absorbed from the atmosphere, in a comparative ratio, to the amount evaporated by the sun, and also as the amount of absorption, must be in proportion to the amount of surface exposed, the real difference between the ridged and level surface was still a matter of question, in that respect, but with regard to the mechanical operation of horse or hand hoeing, the difference was decidedly in favour of the ridged surface. As Mr. Wright and most of the Gentlemen present have confined their remarks principally to green crop. Mr. Black's observations on wheat drilling are of great importance, and calculated to take up the subject more fully, and as Mr. Black and himself occupied adjoining farms, and he was in the habit of seeing Mr. Black's operations, he could most satisfactorily endorse his statements, and had home witness to the difference in a field of wheat of his, between drilling and broadcast sowing with respect to winter killing, the difference in favour of the drilled part being not less than fifty per cent.

The Drilling Machine not only puts in a given quantity of seed at regular intervals, and at an uniform depth, but it leaves a narrow ridge of earth between each row of wheat, which not only forms a protection to the plant, by breaking off the wind and holding on the snow; but it also keeps the plant earthed up by the crumbling down of this ridge by the action of the frost and rain, and all but providing a remedy for what is called heaving out.

As the preceding remarks on grain drilling have been confined to Winter wheat; he would also state his observations with regard to drilling spring grain. The same advantage in saving seed obtains, in this department as much as the other; and while the advantage of the ridge of earth as a protection was not required at this season: yet the greater facility afforded for the extirpation of weeds either by the hand or horse hoe, rendered drilling of quite equal importance; and he knew of no other way to combat the foul weeds to which we are so much liable, than by cutting or pulling them up; and if the grain is not in rows, it is almost destroyed in the operation. His intention in future even on lea or green sod turned over, (and which was considered if properly ploughed, to furnish the best kind of seed bed,) was to sow his Peas by the drill after scaring and harrowing the surface as much as possible without disturbing the sod, he was quite satisfied of the benefit of harrowing, tried it for the last two years. The Pea was the most difficult of all seeds to cover by the harrow, and he was satisfied that not less than twenty-five per cent of the seed was usually lost, by either being buried too deep or left uncovered on the surface, in the common manner of sowing broadcast and harrowing in. Another remarkable advantage drilling possessed, was this; that plants sown thickly together, have the property of forcing each other forward. As proof of which, it was only necessary to notice clumps of grain, or seeds, which may have been spilt on the ground in sowing or in any other way. This fact has been taken advantage of in turnip sowing; as the most

successful means of combating the ravages of the insect, which preys on the plant at its germination. It is now almost the universal practice in Britain to sow three pounds of turnip seed to the acre, when as many ounces would furnish plants enough for a crop, if nothing was in the way to destroy them, and it is done quite as much from the circumstance just mentioned, as from the fact, that should there be a given amount of insects on every acre, there would be a better chance to save a portion of the plants for a crop if a large amount was supplied for their consumption instead of a small one. And further as this insect can only materially injure the plant while in the seed leaf the sooner it is forced out of that state the better, and this is decidedly produced by thick sowing.

And with respect to wheat, this fact is of considerable importance, that is if by placing the same amount of seed usually scattered all over the surface of the land in rows nine or ten inches apart, the same principle is made use of. And as rust is the most formidable enemy wheat-growers have to contend with in this country, and as it is universally allowed that the earliest crops are the least subject to its ravages; it follows that should drilling be found the means of forwarding its maturity only three or four days, the advantage would be almost beyond calculation.

A vote of thanks was given to Mr. Wright for his excellent Essay.

The next meeting was appointed to be held at Wilson's Inn, Court House, on Saturday, April 24th, at 2 o'clock. The Subject for discussion to be on the adaptedness of the improved breeds of neat cattle to the wants and circumstances of this country.

Mr. J. Wade to introduce the subject by an Essay.

WALTER RIDDELL,
Secretary.

HINTS FOR IMPROVEMENT IN FARMING.

(To the Editor of the *Canadian Agriculturist*.)

{ SOUTH CAYUGA, near Dunnville,
April 24th, 1852.

DEAR SIR:—In these times of great distress amongst the honest, industrious men engaged in Agricultural pursuits (the most honourable that I know of) permit me to address you with the few following lines, under the impression that the greatest produce of every kind ought now to be raised at the least possible expense of money and time, that no *unnecessary waste of money or labour should be committed*.—I do not mean to say that any one, after having got his farm into a proper state of cultivation, to produce a good average routine of crops of grain (not straw alone) for 7 years, or any longer period (which is so rarely seen here) should, by neglect or improper treatment, run it down to poverty (as that would most likely run him into poverty also); but I mean that the land, of

whatever kind or quality, should be kept up to a *fair standard of vegetative power, and free from weeds*, to ensure a good crop, as far as man can do it in this or any other climate. I know, Mr. Editor, that many object to what is called a *naked fallow*, or resting and cleaning the land by this means for one year, but I have never seen a better plan to begin with (I mean a fallow of moulds, not large blocks of clay) and it has been generally admitted to be as good as a coat of manure in most cases; except good land lying near a town, as Mr. Mores of Albany, for instance, which he gardens and farms also, which can seldom be done. Indeed I have not met with a man who could carry on a large scale of sound practical Horticulture and Agriculture to advantage; nor is it absolutely necessary; and as labour is too dear here, and money very scarce, I think a farmer need not fill his buildings with too much complicated and expensive machinery, such as require many men and horses, with an engineer also [as Mr. Mechi of Tiptree hall does,] I think a half or whole drill of Mr. Smith's, of Suffolk, a two or four horse power thrashing machine, a good fanning mill, a set or sets of Rhomb harrows, with good ploughs, and double ones for horse hoeing corn, grain or potatoes, with a good set of scarifiers to save ploughing and to put in spring grain with, fitted up with wrought iron which will last his life time [for I used them 37 years with little cost] and *great saving of labour*. I think the above all the implements necessary for good cultivation on these lands, with a *good quantity* of seed also, which is here, I observe, often scanty and sometimes not good. I observe a correspondent recommend the Prescott plough as one of the best. Could you favour your readers with a draft or sketch of one, with its dimensions? I have not seen a good one here; for a short beam, a short bottom and short handles, never made a good plough yet. I think I bought the first patent plough that Messrs. Ransome of Ipswich made on the 22nd of Aug., 1809 or '10; the plan was good, but the plough has been much strengthened and improved since, and I believe is in general use. I prefer a plough with a beam 7 ft. 4 in. long, the bottom 3 ft. 10 in. long, handles 5 ft. 3 in. long, the end of the beam to be what is called pitched 1 ft. 2 in. from the ground, so that the mechanical or straight line of draught goes from the point of the share, or coulter if fixed on it, to the end of the beam and thence to the hook of the hame, which keeps the plough to a steady uniform depth, and a small wheel, or even two, keeps it more so. The ploughs made here have a very short mould board suddenly turned, which breaks the clay land up into large heavy blocks, which, when dried by the sun and wind, destroy all powers of vegetation even of weeds, spoil the

land in fallowing, and, when sown, produce only half a crop of bad grain and take a year or two of rain and frost to pulverize them again, and a coat of manure also; whereas, with moderate ploughing, scarifying twice or thrice at a cost of 1s. 6d. per acre, would prepare the ground for a good crop.

I know of no clay land being ploughed for spring grain in England, for the last fifty years. I am very glad the model farm is to try fleet, moderate, and deep ploughing; as I have seen the latter double the labour, grow sometimes a rank straw, but never saw it produce a good and great crop of grain, but have seen the dry grain taken from under the clods in harvest time, before I got the scarifier, but not after. As grain sells so low, I believe the Dairy* would pay much better, if we had some good Dairy maids. Would you be so kind as to inform your readers at what degree of heat good butter and cheese are made with any certainty? I think cream should be warmed up to 62 degrees to make butter, and new milk warmed to 92 degrees to make good cheese; but as you, or your numerous correspondents could give the desired information, you would be doing great and good service by doing so, as many thousand dollars annually go over into the States to buy cheese, which might be laid out in buying useful articles here, such as *free trade* prevents our buying.

I regret that I do not see what used to be called a regular, permanent, and good routine system of cropping these clay lands, as I have been, at heart, a practical Horticultural and Agricultural man for 50 years, and shall always remain a lover of them; but I do not like to see a free trade manufacturer make himself a pauper by wishing to be fed by the farmer for nothing; this is unchristian avarice. Now, with respect to cropping clay land, at taking a farm out of order and in a poor state, generally the case, we began a fourth of the land with a good fallow with moulds, not with large blocks of clay, in which no weed could vegetate; this was sometimes manured and sown with wheat, except where mildew was feared,† then with peas, beans or barley, afterwards with oats or barley; but where mildew was feared, the wheat, oats and

* I do not like these great tender Durham Cows; they cost too much to keep for the milk they give. I prefer the native Cows—they are more hardy and pay better; but I think the Galloway and Angushire Oxen and Cows would do better and fat faster.

† I have known a farmer entirely ruined by constantly laying on ashes for wheat; it made the straw too rank, and it mildewed every year. I think ploughing in a large crop of clover or buckwheat would do the same. Lime, 80 bus. per acre, prevents it on clay land, and 14 bus. of salt per acre, prevents it on sandy land.

barley crops were reversed, that is taken first instead of last, and the manure laid on for peas, beans or clover; this system well pursued for four years, the land was much improved, and, after the second fallow, it did not cost much for weeding. I reduced weeding from 16s. per acre to 6d. per acre in this way. Only $\frac{1}{8}$ th of the land was usually sown with clover, as this plant sown every four years, being 18 months in the ground, rooting deep, and thereby lining the land, and often producing only half a crop or a failure, endangered the wheat crop grown after it, if sown every four years, except twice or thrice ploughed, which was too expensive. I observe here, that even with a large quantity of Timothy seed [the best for this land] the clover when sown two or three years [except constantly fed] is heaved up by the frost and produces but little, and is not so good in quality for hay, although it always does best on new land.

I think, Mr. Editor, a plain, strong scarifier, such as used in Suffolk forty years ago, might be strongly recommended here, even in these enlightened times. I had two, and wish I had used four, as they used to do six acres or more in a day each; they were made with wrought iron, steeled; they would materially assist in making a good fallow by cutting up weeds and tearing up grass; they prepared the land for spring sowing; and, by shifting the blocks and hoes, they would horsehoe 6 acres of wheat, peas or beans, in 7 or 8 hours, and mould them up at the second time; they would also mark out the ground for planting potatoes, corn, &c., after they had scarified it; so that a double plough would hoe and mould up the plants like a garden. In short, I have these things now to cultivate the land well and cheaply; the scarifier cost 16 dollars for iron and steel work. If you think these few lines, without theory, can be of any use to your readers, I shall be glad, and remain,

Yours very sincerely,
ROBERT F. COOKE.

STATE AGRICULTURAL FAIRS, 1852.

Canada West, at Toronto,.....	Sept.	21 to 24
New-York, at Utica,.....	Sept. 7, 8, 9, 10	
Texas, at Corpus Christi,.....	First week in May.	
Ohio, at Cleveland,.....	Sept.	15, 16, 17
Michigan, at Detroit,.....	"	22, 23, 24
Vermont, at Rutland,.....	"	1, 2, 3
Pennsylvania,.....	Oct.	20, 21, 22
Wisconsin, at Milwaukee,.....	"	6, 7, 8
Georgia,.....	"	18 to 23
Rhode Island Society of Improvement, at Providence,.....	Sept.	15, 16, 17

SALT FOR CATTLE.

The W. R. Farmer and Dairyman publishes the following remarks from the pen of Professor Robinson:

"I have for many years been perfectly convinced

that salt allowed in quantity is highly prejudicial to all breeding animals, as it has a direct influence in greatly diminishing the necessary supply of milk for the immediate sustenance of the young animal; hence salt is the best medicine to 'dry' a cow of her milk, and ewes would also be benefitted by the access to this substance, for one week, when the lambs are taken from them. I am also convinced that salt has the effect of diminishing the secretion of the liver, and that it is from this cause that the good effects of salt are so obvious in the feeding of animals. It is well known that incipient diseases of the liver are favorable to the production of fat. When lambing ewes are allowed a large quantity of turnips, with but a small amount of other food through the winter, abortion is a frequent occurrence; their supply of milk is very deficient, and their lambs are dropped of various sizes, and far from healthy. If the ewes are allowed free access to salt, the lambs will be still more unhealthy, and may die of indigestion and disease of the liver. The mortality of the lambs, in these cases, may, I think, be fairly attributed to the amount of salt taken by the dam; for, admitting that a small portion only is directly given them, the quantity positively taken in their food, in turnips, is somewhat considerable. This is a point—the nominal or natural quantity of salt contained in the different roots, &c., consumed by animals as food—which will throw much light upon this most important branch of agriculture. That the use of salt is highly beneficial at certain seasons there cannot be a doubt; but, from my own knowledge, it is no less equally true that the too free and indiscriminate use of it to all stock, and at all times, is highly prejudicial."

Animals know their own wants much better than we do, and all they require of us is, to place a lump of rock salt in a position where they can regale themselves at their leisure, and they will take what they need; seldom, if ever, taking too much.—*Veterinary Journal*.

PERIOD OF GESTATION OF DOMESTIC ANIMALS.

It is often important for farmers to know the exact length of time that the different domestic animals go with their young. The following table contains the times of those which most concern him, as near as we can ascertain them:

Mare,.....	11 months.
Jennet,.....	11 "
Cow.....	8 "
Goat.....	4 $\frac{1}{2}$ "
Ewe.....	5 "
Sow.....	4 "
Bitch.....	2 "
Cat.....	8 weeks.
Rabbit.....	4 $\frac{1}{2}$ "
Rat.....	5 $\frac{1}{2}$ "
Mouse.....	4 $\frac{1}{2}$ "
Guinea Pig.....	3 "

Period of incubation of domestic fowls:

Swan.....	6 weeks.
Turkey.....	4 "
Goose.....	4 "
Duck.....	4 "
Pea Hen.....	4 "
Guinea Hen.....	3 "
Common Hen.....	3 "
Pigeon.....	2 "

—Granite Farmer.

THE CATTLE CONTROVERSY.—Mr. Parsons, we regret to learn, in consequence of severe sickness in his family, has not been able to complete his reply to Mr. Sotham, which we had fully calculated on publishing in our present number, but prefer waiting till the next, that the whole may appear together.

THE PURIK SHEEP OF THIBET.—A ram and three ewes of this breed have been recently sent to England, where they have proved themselves wonderfully prolific. They attain early maturity, and when grown, weigh 30 to 40 pounds. They are hardy and easily reared, and are commended as excellent substitutes for the poor man's dog.

Mr. Moorcraft, who travelled extensively in their native country, some years since, thus describes their pet-familiar habits:

"The Purik sheep, if permitted, thrusts its head into the cooking pot, picks up crumbs, is eager to drink the remains of salted and buttered tea or broth, and examines the hands of its master for *lattro* (barley-flour) or for a cleanly-picked bone, which it disdains not to nibble. A leaf of lettuce, a peeling of turnip, the skin of an apricot, are also its luxuries."—*English paper*.

LOOSENESS IN SHEEP, OR SCOURS, is one of the most sudden and rapid disorders that attacks them; especially thin sheep and lambs. It is generally caused by eating raw or early cut hay. The best method to prevent and to cure is, to give them daily, a few messes of wheat in the sheaf, a regular quantity of salt at all times. If it occurs in the winter, brine ripe hay seed: wheat chaff is good, so is a small quantity of oats, and a few pine or hemlock tops. Keep them a few days on ripe hay or corn fodder.

GROUND AND UNGROUND FOOD.—In a communication from the Society of Shakers at Lebanon, N. Y., in the Patent Office Report, we find the following:

The experience of more than 30 years leads us to estimate ground corn at one-third higher than unground as cattle food, and especially for fattening pork; hence it has been the practice of our society for more than a quarter of a century to grind all our provender.

The same experiment induces us to put a higher value upon cooked than upon raw meal; and for fattening animals, swine particularly, we consider three of cooked equal to four of raw meal.

Until within the last three or four years our society fattened annually for 30 years, from 40 to 50,000 pounds of pork, exclusive of lard and offal fat; and it is the constant practice to cook the meal, for which six or seven potash kettles are used.

The Shakers are a close, observing, calculating people, and go in for the practical realities of life, and therefore, in the economy of food, must be presumed to be good judges.

YEAST.—The bitterness of yeast, which is often a cause of complaint, may be removed by straining it through bran, or by dipping red-hot charcoal in it. But the most effectual and easily available remedy is to put the yeast in a large pan and cover it with spring or well-water, changing it every three or four hours. The bran seems to impair the strength and

coal sometimes stains it, but the water purifies it in color and taste.

The mode of using water for keeping and purifying yeast, has been adopted by some of the American housekeepers with entire success.—*Gardener's Chronicle*.

Richmond Hill Fair.

The annual Fair and Cattle Show of the Yonge street Agricultural Society, was given in Richmond Hill, on the 25th instant. The following account of it is from a correspondent. "There were a great concourse assembled from the surrounding townships, also many gentlemen from the City of Toronto, known to be staunch friends of the cause. The competitors for prizes were numerous, and the weather being exceedingly favorable, there was nothing required to make up all that could be desired for the occasion. As our subscription list is very numerously signed, and our funds in a flourishing condition, I would here mention that this Society has always made good its engagements, by paying the prizes awarded, immediately after the day on which the Fair is held. After the judges had made their award for the different classes entered for competition, about one hundred and fifty gentlemen sat down to an excellent dinner, served up in Mr. Dalby's usual style. Having done every justice to ourselves and the good things laid before us, the cloth was removed, and the President of the Society, George P. Dickson, Esq., enterprising proprietor of Elgin Mills, rose—and, after making a short but very appropriate speech, proposed the following toasts, which were received with enthusiastic cheering:—"The Queen," "Prince Albert and the Royal Family," "the Governor General of Canada." Besides the above, there were a number of volunteer toasts, many of which were responded to with eloquent speeches from different gentlemen present—a report of which I am not prepared to send you, nor could it be expected that you should have your paper filled up exclusively with the proceedings of our Fair and dinner—but knowing that the *Colonist* has a large circulation in this part of the country, I take the liberty of sending this to you, in order that those who could not make it convenient to attend, may know what took place. The day's proceedings closed with foot-races amongst the juveniles. The following is a list of the prizes awarded.

Draught Stallions.—1st prize, George P. Dickson's "Champion"; 2d, J. & W. Crawford's "Farmer's Blossom"; 3rd, James Bell.

Stallions for General Purposes.—1st, Nathaniel Davis' "Perfection"; 2d, John Borthwick's "Flower of the Forest"; 3d, George Sheppardson's "Volunteer."

Brood Mares.—1st prize, T. Martin, of Markham; 2d, T. Armstrong, of Vaughan; 3d, R. Armstrong, of Markham.

Entire Colts, dropped in 1850.—1st prize, William Cherry of Markham; 2d, Peter Musselman, Vaughan; 3d, C. E. Lawrence, Vaughan.

Filly or Gelding, dropped in 1850.—1st prize, Robt. Armstrong, of Markham; 2d, Peter Musselman, Vaughan; 3d, D. Bloomfield, Markham.

Horse, Colt or Filly, dropped in 1851.—1st prize, William Cherry, Markham; 2d, John Cox, Markham; 3d, Ashton Fletcher, Whitchurch.

HORNED CATTLE.

Prize for best aged Bull, Jacob Smith, of Vaughan; 1st prize for Bull under three years old, Nathaniel Davis, of York; 2d, Nathaniel Davis.

Milch Cows.—1st prize, Nathaniel Davis, of York; 2d, George Priest, of Vaughan.

Heifers, 2 years old and under.—1st prize, George Preist, Vaughan; 2d, Nathaniel Davis, York.

Prize for best pair of Fat Cattle.—George Ratcliff, of York.

SWINE.

1st prize for best Boar, George P. Dickson; 2d, Jacob Kirts, of York.

Brood Sow.—1st prize, Christopher Smith, of Whitchurch; 2d, Amos Wright.

DAIRY PRODUCE.

1st prize, best 10 lbs. butter, Robert McNair, of Vaughan; 2d, R. C. Gapper, Markham.

FARMING IMPLEMENTS.

Prize for best Fanning Mill, Lewis Hooke, Markham; prize for best Iron-headed Plough, Edmund Bennets, Chinguacousy; prize for 1st best Wooden Plough, William Matthewson, Vaughan; prize for best Ribbing Plough, W. G. Hingston, Markham; prize for best Washing Machine, Thomas Shaw, Vaughan."—*Colonist*.

HORTICULTURE,

THE SCIENCE AND PRINCIPLES OF GARDENING.

NO. VI.

PRINCIPLES OF CULTIVATION.

It is of little use to know of what plants consist, and how they live, and to what influences they are subjected, if the means by which this knowledge is to be generally acted upon and applied be not also understood. The former may be the basis, the latter must be the superstructure. And although sundry processes may already have been incidentally noticed or explained, they either require fuller elucidation or putting in different lights.

1.—DRAINING.

This may almost be called a modern practice, for it is but lately that it has come at all conspicuously into vogue. It is, however, one of the most decided advances which recent art has made, and its advantages will be incalculable. It will not be every garden that requires draining. Some may be composed of soil that is very light and dry, and others may have a sufficient slope to carry off all surplus water. But where the ground is flattish, and has the slightest tendency to stiffness, draining will produce an immense improvement to the crops, and to the comfort of working and walking in the garden.

The first point to be attended to is to drain pretty deeply. Shallow drains are never satisfactory, and often come in the way of the spade. Three feet, or even three feet six inches will be about the right depth, with the main drain three

inches lower. The drains should follow the natural fall of the land, and have a tolerably good fall, which can be obtained by cutting them a little deeper at one end where there is no slope in the land. They ought to be three inches wide at the bottom, and fourteen or fifteen inches at the top, the main drain (which may discharge itself into the house drain or any other outfall that can be had) being made a little wider. Where tiles can be procured, those with a flat bottom are the best, otherwise they will require a slate sole to rest upon. Tiles of two inches diameter, and three inches for the main drain, will be sufficient. In the absence of tiles, each drain may be filled to within fifteen inches of the surface with old brick rubbish that is not too small, rough stones, broken earthenware, cinders, strong gravel, or broken rock or rubble in a rocky district. A few branches may then be laid over each, and the same materials should be placed over tile drains to within a like distance of the surface. The drains may be four or five yards apart, in parallel lines, and the main drain along one boundary.

Plants in pots require special attention as to draining, for they are in a more artificial state, and are liable to be much injured by superfluous water. In addition to putting plenty of drainage in the bottom of the pots, a few small pieces of broken stone or brick, with lumpy fragments of decayed turf or peat, may be mixed sparingly with the soil, to perfect the drainage.

2.—OPERATING ON SOIL.

Trenching should always follow draining, or the latter will act but partially. Unless the ground be stirred pretty deeply, half the effect of draining will be lost. Both must be done in the autumn or early part of the winter, and the ground will then be in a good state for cropping in spring. These and all other operations on ground should always be done when it is in a moderately dry state. If it be worked and trampled while wet, especially when it is of a stiff nature, it will coalesce into a kind of crust which will greatly spoil its texture.

Manuring may be done in early winter when the ground is somewhat frozen; as the material can then be wheeled on with greater ease, and the ground and paths will be less cut up. But the manure should be dug in directly the frost is sufficiently gone, or it will lose much of its virtue by the exposure. Digging should always be deep and thorough, since it changes and incorporates the soil better, and allows the air to pass among it more freely. Whatever ground falls vacant in autumn, ought always to be dug up in ridges, unless it be very light and shallow, that it may derive all the benefit of the winter frost and snow. The difference in the ease of working in the spring, soil that has been thus exposed and such as has been left untouched, is most marked and striking. Hoeing, at least among growing vegetables, should be deep, and stir the ground well, this being quite as important as killing the weeds. Raking is always bad, unless where wholly unavoidable, for it tends to encrust over the surface of the ground, and render it hard and close.

3.—WATERING.

This ought to be done with the spout of a can for individual plants, or with a rose for a mass of them. The watering-pot must be held as low as possible during the operation, that the particles of the earth may not be washed into a crust. When watering with a rose, too, it will be necessary to stir the surface of the ground occasionally, or it will become baked, and impervious to both air and moisture. Watering or syringing over the head of plants is an important part of the process.

After watering has once been begun with any out-door plants, it will be proper to continue it regularly until rain occurs; otherwise the plants will suffer almost more than if they had been left entirely to themselves. If there is no danger from frost, the evening is the best period for watering plants, as it allows them the whole night for the purpose of imbibing and profiting by it. The early morning is the safer at other seasons. Plants in pots will require to be watered with great constancy, but discrimination; giving to each only just what it is seen to need. They should be watered solely in mild weather during winter, as wetness conduces to injury by frost.—*Kemp's Principle of Gardening.*

SOAP SUDS FOR VINES.—A. J. Downing, editor of the Horticulturist, says, "I have seen the Isabella grape produce three thousand fine clusters of well-ripened fruit in a season, by the liberal use of manure and soap suds from the weekly wash."

SCIENTIFIC.

VENTILATION.

To School Masters and the Parents of School Children throughout Canada:

Now that the necessity of the ventilation of School houses is beginning to be felt as well as read about, it is only necessary for me to remind you that our Schools are the nurseries of most of the diseases which affect the adult population of our land. I have great pleasure in now informing you that I have found a remedy, and that after eight years of incessant labour, and the expenditure of many thousands of dollars in experiments, I have reduced spontaneous or natural *Ventilation* to a science—an unerring and universal system, which has never before been accomplished by any man. As some evidence of this, I beg to refer you to the two subjoined documents.

This School-house is the only building which has ever been built for the purpose of carrying out my system.

As hundreds of School-houses must of necessity be erected every year, and as the building season is rapidly advancing—I take the earliest opportunity of apprising you that no building can be ventilated unless it is expressly built for it; and I think that, considering the public importance of the subject, I may fairly call upon the *Press* of the Province to aid me in spreading this information before the public.

As much of my time as my business will admit of, will cheerfully be devoted to the instructing of builders as to the *mode* of building for this purpose; and I think I may venture to say, that I can make myself understood by any practical man of good judgment, merely by writing. And further, I will do my utmost to find time for a personal inspection of the work, if within any reasonable distance of this place and water communication, during this summer.

Your obedient servant,

H. RUTTAN.

Cobourg, 5th May, 1852.

P. S.—To save time, send me a rough plan of the building you want. H. R.

Testimonials from Lynn, Massachusetts.

LYNN, April 12th, 1852.

HENRY RUTTAN, Esq.,

Dear Sir,—Since you were here and viewed the working of your system of Ventilation in my School-house, and informed me that it was the first building in the United States ventilated upon your principle, it occurred to me that it might be useful to you to have my testimony in its favor, for you to refer to; and therefore I cheerfully enclose you the following:

To H. Ruttan, Esq.

SIR,—I have been a Teacher many years and found myself fast wearing out without reflecting upon the real cause. I find now, after having taught one winter in a *Ventilated* room (for after experiencing your system I do not call anything I have hitherto seen ventilation), I feel as if I had a new lease of my life, and hope to end my days in my loved avocation, instead of feeling at night, as formerly under the hot air and stove system in winter, almost used up, if I may so express myself, with head-ache, a soreness of the throat, and general depression of spirits, I feel as if I had at the end of each day enjoyed a holiday, and what is of more importance still, I see the same joyous expression upon the faces of my hundred pupils.

As it respects the *warming*, the economy in fuel of your system over that of all others is quite apparent. This I attribute to the exhaustion of the *air under the floor* which not only draws off the cold which is always found between the joists, but serves the purpose of warming the floor boards on the under side as well as the upper.

You may make what use you like of this.

Yours truly,

JOHN L. SHOREY,

Principal of the Howard School.

N. B.—Boston is supposed to have the best ventilated school-houses in the Union, but there is nothing there to be compared with yours.

J. L. S.

CITY OF LYNN, Mass., April 15, 1852.

DEAR SIR,—Mr. John L. Shorey is, and has been for eight years past, a teacher of one of the principal Schools in this city.

His School occupies the new house erected the last year, to which your system of Ventilation was applied.

I consider his opinion in regard to the advantages of your system, as entitled to great weight from his scientific knowledge, long experience, and intelligence. I concur fully with him in his views of the superiority of your system over all others. Indeed I do not think I shall state the matter too strongly, when I say that it is the only efficient plan yet devised for the ventilation of public and private buildings.

I am Sir, with great respect,

Your obed't servant,

GEORGE HOOD,
Mayor.

H. RUTTAN, Esq., &c., &c. }
Cobourg, Canada. }

CHEAP WASH FOR COTTAGES.

For the outside of wooden cottages, barns, out-buildings, fences, &c., where economy is important, the following wash is recommended:

Take a clean barrel that will hold water. Put in it half a bushel of fresh quicklime, and slake it by pouring over it boiling water sufficient to cover it 4 or 6 inches deep, and stirring it till slaked.

When quite slaked dissolve in water, and add two lbs. of sulphate of zinc, (white vitriol) which may be had of any of the druggists, and which in a few weeks, will cause the white-wash to harden on the wood-work. Add sufficient water to bring it to the consistency of thick whitewash. This wash is of course white, and as white is a color which we think should never be used except upon buildings, a good deal surrounded by trees, so as to prevent its glare, we would make it a fawn or drab color before using it.

To make the above wash a pleasing cream color add 4 lbs. yellow ochre.

For a fawn color, take 4 lbs umber, 1 lb. Indian red, and $\frac{1}{2}$ lb. lampblack.

Lampblack, when mixed with water colors, should first be thoroughly dissolved in alcohol. Yellow ochre, Indian red, &c., are all sold in dry powders at a few cents per pound.

To make the wash grey or stone color, add 1 lb. raw umber, and two lbs. lampblack.

The color may be put on with a common white-wash brush, and will be found much more durable than a common whitewash, as the sulphate of zinc sets or hardens the wash.

Cheap wash for Cottages of brick, stone, stucco, or rough-cast. Take a barrel, and slake half a bushel of fresh lime as before mentioned; then fill the barrel two-thirds full of lime. water Dissolve in water and add three pounds of sulphate of zinc. The whole should be of the thickness of paint, ready for use with the brush. This wash is improved by the addition of a peck of white sand stirred in just before using it. The color is a pale stone-color, nearly white.

To make it fawn color, add 1 lb. yellow ochre, 2 lbs. raw umber, 2 lbs. Indian red.

To make it a drab, add 1 lb. Indian red, 1 lb. umber, 1 lb. lampblack.

This wash, which we have tested thoroughly, sets and adheres very firmly to brick work or stucco, is very durable, and produces a very agreeable effect.—*Downing's Architecture.*

MODES OF CURING HAMS.

The Maryland Agricultural Society awarded four premiums to the following *Recipes* for curing Hams; a process of Domestic Economy for which Virginia as well as Maryland has become distinguished.

T. E. Hamilton's Recipe.—First Premium.—To every 100 pounds pork take 8 pounds of G. A. salt, 2 ounces saltpetre, 2 pounds brown sugar, $1\frac{1}{2}$ ounces of potash, and 4 gallons of water. Mix the above, and pour the brine over the meat, after it has lain in the tub for some two days. Let the hams remain six weeks in brine, and then dried several days before smoking. I have generally had the meat rubbed with fine salt when it is packed down. The meat should be perfectly cool before packing.

J. Green's Recipe.—Second Premium.—To 1000 pounds of pork, take half a bushel and half a peck of salt, 3 ounces of saltpetre, 3 pounds of sugar, and 2 quarts of molasses. Mix—rub the bacon with it well; keep on for three weeks in all; at the end of nine days take out the hams, and put those which are at the top to the bottom.

R. Brooks, Jr.'s Recipe.—Third Premium.—One bushel of fine salt, half bushel ground alum, salt, one and a half pounds to a thousand pounds of pork; left to lie in pickle four weeks; hung up and smoked with hickory wood until the rind becomes a dark brown.

C. D. Slingluff's Recipe.—Fourth Premium.—To 100 pounds green hams, take 8 pounds G. A. salt, 2 pounds brown sugar, or molasses equivalent, 2 ounces pearlashes, 4 gallons water; dissolve well, skimming off the scum arising on the surface. Pack the hams compactly in a tight vessel or cask, rubbing the fleshy part with fine salt. In a day or two pour the above pickle over the meat, taking care to keep it covered with pickle. In four to six weeks, according to the size and weight of the hams, (that is to say, the longer period for heavy hams,) hang up to smoke with green hickory wood. I have put up hams for the last twelve or fifteen years by the recipe with uniform success, equal at all times to the sample now presented.

INVENTION.—The Oswego Times says that a Mr. Weeks of that city, has invented a paddle wheel for Steamboats, called the "Abligus Paddle Wheel," which it is believed by good judges will entirely supersede those now in use. The advantage of this wheel consists in the shape of the paddles. They are angular, and instead of striking the water with a succession of flat jarring blows, they come in contact with it *obliquely* and, without losing any of the motive power, exert an equal continual force, which at once acceler-

ates the speed, saves a large amount of wear and tear to the machinery; and almost entirely obviates that unpleasant jarring sensation, which no doubt has been felt by all travellers on Steamboats. The *Northerner*, one of the Ontario and St. Lawrence Steamboat Co's. best boats on this lake, has had Mr. Weeks' newly invented wheels in operation since the opening of navigation; the experiment has fully satisfied the most sanguine expectations of the inventor, and gives great satisfaction to the officers and owners of this justly celebrated Steamer.

FLOWERS.

FROM CHAMBERS' POCKET MISCELLANY.

Wildings of nature, or cultured with care,
Ye are beautiful, beautiful everywhere!
Gemming the woodland, the glen and the glade,
Drinking the sunbeams or courting the shade;
Gilding the moorland and mountain afar,
Shining in glory in garden parterre.
Ye bloom in the palace, ye bloom in the hall,
Ye bloom on the top of the mouldering wall;
Ye bloom in the cottage, the cottager's pride—
The window looks cold with no flowers by its side;
Ye twine up the trellis, ye bloom in our bowers,
Ye carpet creation, ye beautiful flowers!

Did angels descend from their home in the skies,
To pencil those petals with exquisite dyes?
To store in your cells the rich odours of heaven,
Was employment so meet unto seraphim given?
Ye answer me: No; 'twas an Almighty hand
That clothed you in beauty, and bade ye expand.
Rich gems of creation, that ravish the sight,
And pour on the senses supernal delight;
Wildings of nature, or cultured with care,
Ye are beautiful, beautiful everywhere!

When morn's early beams gild the glorious east,
Your incense ascends unto Nature's High-Priest;
When sunset foreshadows the day's dewy close,
Ye fold up your petals for welcome repose.
Your odours impregnate with health every breeze,
Ye furnish a feast for the banqueting bees;
Ye promise in eloquent language, though mute,
Boughs bending with offerings of delicate fruit;
Ye tell, when your glory and fragrance is o'er,
That Autumn shall come with his rich gushing store.

Sweet'ners of life, ye are infancy's play;
To boyhood's bright dream, O what charms ye display!
In years more mature we but love you the more,
As tracing veiled beauties undreamt of before.
To childhood, to manhood, to age ye are dear;
Ye are strewn at the bridal and strewn on the bier;
Fair flowers even there soothe the lone mourner's woes,
And hallow the turf where loved ashes repose.
Wildings of nature, or cultured with care,
Ye are beautiful, beautiful everywhere!

JOHN PALMER.

Annan, July 11, 1851.

DEVON CATTLE IN GEORGIA.—The editor of the *Southern Cultivator* says, "The climate of the south seems especially adapted to the growth and development of the Devon, and we shall probably see, ere long, some noble animals of this breed from the fine herds now among us. Georgia is at present far in advance of her sister states of the south in this matter; and if her enterprising importers and breeders are true to themselves, and continue to press forward as they have begun, she can, at no distant day, justly lay claim to the title of the Devonshire of America."

CAUSE OF TUBERCLES IN COWS. If young and healthy cows be brought from the country into the city, and confined to stalls attached to dairies, they at first become fat and sleek; but after some time, several of them are observed to grow thin, become unhealthy and if not speedily removed, fall into a state of marasmus. After death, tubercles are found in several textures of the carcass.—*Andral*.

THE HUMAN FAMILY.—From an interesting statistical digest just published, it appears that the human family numbers 700,000,000, and its annual loss by death is 18,000,000, which produces 624,400 tons of animal matter, which, in turn, generates, by decomposition, 9,000,000,000,000 cubic feet of gases, which are cleared away from the atmosphere by vegetable matter decomposing and assimilating them for their own uses.—*Eclectic Journal*.

TO FATTEN POULTRY.—Shut them up in the dark, gorge them with boiled food, and allow them a small quantity of charcoal daily. Every meal that a man makes on such food adds a nail to his coffin.

AGRICULTURAL COLLEGE.—We learn that a course of instruction in agriculture is now in progress at Western Reserve College, Jefferson, Ohio, under Professor Forrest Shepherd.

Answers to Correspondents.

RECEIVED.—"Proceedings of the Agricultural Society of the United Counties of Frontenac, Lennox and Addington," Major Lachlan's Lecture before the Natural History Society of Montreal; a Circular on Butter making from W. M., Brockville; and a letter of the late Mr. Smythies, from Mr. Sotham;—all of which shall receive attention in our next.

VENTILATING STABLES.—*Tyro* will find some remarks on the qualities and methods of fixing Ammoniacal Gas in Professor Croft's paper in our last number, that will facilitate his enquiries. There can be no doubt whatever that this volatile gas injuriously affects the sight of horses, and induces disease, when they are exposed to its influence in close, hot stables. Cleanliness and a free admission of fresh air, are as necessary to the health and well-being of domesticated animals, confined within buildings, as to man. Sulphate of lime or Plaster, [not common lime, or the Carbonate] moistened with diluted Sulphuric Acid [oil of vitriol] and sprinkled daily over the floor of the stable will readily absorb ammonia, and change it into a solid form; which compound, by the bye, is an excellent manure. Charcoal, whether obtained from wood or peat, broken fine and applied in the

same way, will produce a similar effect. Carbon possesses the power of absorbing and deodorizing a vast quantity of ammonia, and the materials as in the former case, form a very powerful fertilizer, adapted alike to the farm or the garden. Enough has been written of late in our columns on the importance and general principles of ventilation to induce our readers to entertain this vital question in an enquiring and earnest spirit; and we think if our correspondent carries into practice, in a common sense way, the few hints we have offered, he will soon have no occasion to complain of the injurious effects of Ammonia in his stable. His other questions involve considerations in relation to modern veterinary practice, which we cannot answer at the moment, or without the advice of a practitioner.

PROPER AGE OF BREEDING CATTLE—*Taurus*—You are quite right; both bulls and heifers are commonly used for breeding much too early in this country, to the irreparable injury of their growth and constitution, and consequently of their progeny. It is doubtful whether bulls ought to be used at all before they are two years old, and heifers most assuredly ought not to be before that period. Perhaps some of our breeders will favour us with an article on this subject, and the general management of breeding stock, as suited to Canada, on which our correspondent seeks information.

A LOVER OF FLOWERS.—There are now extant several excellent manuals of botany, and like many other questions, it is difficult, or rather impossible, to say which is absolutely the best. Something will depend on the price you are disposed to give, and the nature and extent of your enquiries. Dr. Lindley's Series, commencing with "*School Botany*," is the most complete; constructed on the natural system, and brought down to the latest improvements and discoveries in the science. Professor Balfour's introduction (of Edinburgh) is excellent; and Professor Gray's Botanical Text-Book (of Harvard, Boston) would be found both cheap and well-adapted to beginners. The works on Agricultural Botany published in the old country are expensive; the only one we are acquainted with as issuing from the American press, and at a low price, is Darlington's, published by Newman of New York, which our young Agricultural readers, desirous of becoming acquainted with this delightful department of organic nature, may peruse with both pleasure and profit.

J. P., BOND HEAD.—We are not aware of any "Oat or Pea Bruiser" manufactured in this country. The *American Corn Crusher*, made, we believe, either at Rochester or Albany, N. Y., would probably meet your wishes. It is an effective machine, usually worked by horse-power, and can be so adjusted as to crack corn, peas, barley, &c. We do not know the price. Rapalje of Rochester, or Emery of Albany would doubtless give all necessary information.

Experience has now sufficiently proved the advantages of bruising grain for horses, sheep and cattle; a practice which materially aids mastication and facilitates digestion.

PREPARATION OF FLAX.—We have received several enquiries of late relative to this subject. Improvements in Flax machinery are in constant progress in England, and we perceive that the Hon. R. H. Clive, M. P., was about to bring a statement before the Council of the Royal Agricultural Society on the mechanical preparation of flax from the straw by simple machines adapted for the use of farmers. An economical and efficient Farmers' Flax Mill has long been felt as a desideratum, that is now in course of being supplied; and we will lose no time in making our readers acquainted with the purport of Mr. Clive's report, as soon as it reaches us. Mr. Commissioner Widder, a warm and steady friend of Canadian Agriculture, has dispatched orders to England for the most improved flax-dressing machine adapted to the wants of this country, which he hopes to receive in time for our Provincial Exhibition, in September next.

BEET-ROOT SUGAR.—W. H.—We are directing attention to the matter, and shall shortly have something to communicate that will meet your wishes.

OUR ENGRAVER.—It is with much satisfaction that we refer our subscribers to the Illustrations of Animals [Hereford Bull, Shepherd's Dog, and Leicester Ewes] in our April and present number. The cuts were executed by Mr. ALLANSON of this city, who has had much experience in his art, both in England and on the continent of Europe. As the quality of the paper we use, improves, [which is a Toronto manufacture] our illustrations will appear to better advantage.

THE CANADIAN "FAMILY HERALD."

We have to acknowledge the receipt of several numbers of this interesting and instructive Periodical. The articles, whether original or selected, are pleasingly treated and varied, so as to gratify a wide range of tastes;—those on Art, Literature and Natural History, we have been pleased particularly with. The work as it progresses, fully sustains its title, and is admirably adapted to family reading; it being wholly free from any objectionable bias or peculiarities of a political or religious nature; while it is conducted in the spirit of a sound christian morality and of an enlightened patriotism. We regard the extensive diffusion of a cheap and wholesome literature among the great body of the people, as one of the greatest blessings a nation can enjoy. The *Herald* is neatly printed, and published in weekly numbers, by Mr. Fletcher, Bookseller, of this City, at the very low price of *one dollar* per annum.

TO BREEDERS OF IMPROVED STOCK.

We have received from Lewis G. Morris, Esq., the following announcement of his next annual sale, which such of our subscribers as are desirous of improving their stock could not do better than attend. Mr. Morris's sound judgment, great industry and enterprise in his particular department, coupled with his high standing for honorable dealing, fairly entitle him to the confidence and support of a discerning public.—EDITOR C. A.

LEWIS G. MORRIS'

Third Annual Sale, by Auction, of improved Breeds of Domestic Animals, will take place at Mount Fordham, Westchester County, (11 miles from the City Hall, New York,) on Wednesday, June 9, 1852.—James M. Miller, Auctioneer.

Application need not be made at private sale, as I decline in all cases, so as to make it an object for persons at a distance to attend. Sale positive to the highest bidder, without reserve.

Numbering about fifty head of horned stock, including a variety of ages and sex, consisting of pure bred short horns, Devons, and Ayreshires; Southdown buck lambs, and a very few ewes; Suffolk and Essex swine. Catalogues, with full pedigrees, &c., will be ready for delivery on the first of May—to be obtained from the subscriber, or at the offices of any of the principal Agricultural Journals or stores in the Union. This sale will offer the best opportunity to obtain very fine animals I ever have given, as I shall reduce my herd lower than ever before, contemplating a trip to Europe, to be absent a year, and shall not have another sale until 1854.

It will be seen by reference to the proceedings of our State Agricultural Society that I was the most successful exhibitor of domestic animals, at the late State Fair.

It will also offer a new feature to American Breeders—one which works well in Europe; that is, letting the services of male animals; and will solicit propositions from such as see fit to try it. Conditions—The animal hired, to be at the risk of the owner, unless by some positive neglect or carelessness of the hirer; the expense of transportation to and from, to be borne jointly; the term of letting, to be one year or less, as parties agree; price to be adjusted by parties—to be paid in advance, when the bull is taken away; circumstances would vary the price; animal to be kept in accordance with instructions of owner, before taking him away.

I offer on the foregoing conditions, three celebrated prize bulls, "Major," a Devon, nine years old; "Lamartine," short horn, four years old; "Lord Eryholme," short horn, three years old. Pedigrees will be given in catalogues.

At the time of my sale, (and I would not part with them before) I shall have secured 2 or 3 yearly setts of their progeny; and as I shall send out in August next a new importation of male animals, I shall not want the services of either of these next year. I would not sell them, as I wish to keep control of their propagated qualities hereafter.

I also have one imported buck, the prize winner at Rochester last fall, imported direct from the celebrated Jonas Webb; and also five yearling bucks, winners also, bred by me, from bucks and ewes imported direct from the above celebrated breeder; they will be let on the same conditions as the bulls, excepting that I will keep them until the party hiring wishes them, and they must be returned to me again on or about Christmas day. By this plan, the party hiring gets rid of the risk and trouble of keeping a buck the year round. All

communications by mail must be prepaid, and I will prepay the answers.

L. G. MORRIS.

Mount Fordham, March, 1852.

DEATH OF FRANKLIN JACKES, ESQ.

It is our painful duty to record the decease of this lamented gentleman from an attack of small pox, at his residence, on Yonge street, near this city, on the 16th ultimo. Mr. Jackes was only 43 years of age, and has left a widow and thirteen children, with a large circle of sorrowing friends, to lament his loss. He commenced life in this city as a baker, with no other capital than sober industrious habits and a high moral character, all of which he retained to the last. About fifteen years ago he retired from business in the city, after accumulating considerable capital, and adopted a new pursuit,—for the successful prosecution of which his observant and active habits peculiarly fitted him,—that of Agriculture. Mr. Jackes took a leading part in the management of Agricultural Societies, both of the County and Township in which he resided. As late Warden of the County and an active Magistrate, the services he rendered society were of great value and importance; and the large number who followed his remains to their last resting place, consisting of men of all ranks, parties and creeds, forming a procession nearly a mile in length, fully testified that those services were not unappreciated.

Markets.

TORONTO, June 3, 1852.

	S.	D.		S.	D.
Flour, mil's. ex. sup. @ brl. 196lbs	17	6	@	18	9
Farmers' Flour @ brl. 196 lbs	15	0	@	16	0
Wheat @ bushel 60lbs	3	5	@	3	7
Barley @ bushel 48lbs	2	0	@	2	3
Rye @ bushel	2	6	@	2	9
Oats @ bushel 34lbs	1	5	@	1	8
Pease @ bushels 60lbs	2	0	@	2	0
Marrowfat do. do.	3	0	@	3	6
Potatoes @ bushel	2	3	@	2	6
Beef @ 100lbs	20	0	@	25	0

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TERMS.

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N. B.—No advertisements inserted. Matters, however, that possess a general interest to agriculturists, will receive an Editorial Notice upon a personal or written application.

THE CANADIAN AGRICULTURIST

AND Transactions

OF THE
BOARD OF AGRICULTURE OF UPPER CANADA.

VOL. IV.

TORONTO, JULY, 1852.

NO. 7.

A REPORT ON THE STATE OF AGRICULTURE IN THE COUNTY OF HASTINGS;

By Wm. Hutton of Belleville.

TO WHICH WAS AWARDED THE PRIZE OF FIFTEEN
POUNDS, BY THE BOARD OF AGRICULTURE
OF UPPER CANADA.

LOCALITY.

The County of Hastings is bounded on the West by the Counties of Northumberland and Peterboro'; on the South by the Bay of Quinte; on the East by the County of Lennox; and on the North by unsurveyed wilderness. The Western boundary is one hundred miles East from the City of Toronto. The County has several harbours on the Bay accessible by large steamers at all times during navigation. It is about thirty miles wide and forty-four deep, and contains a very large extent of rich arable land, and is well watered by never-failing streams. It contains twelve Townships, but there are two in which there are no inhabitants, in Lake and Grimsthorp; and one, viz., Tudor, in which there are only about seventy.

POPULATION.

It contains a population of 31,977 souls, and the County Town is Belleville (situated on the Bay at the mouth of the river Moria), which contains 4569 inhabitants.

NATURE OF SOIL AND SUBSOIL.

The soil is of a very superior description—about one-third of heavy clay—one third dark mucky loam, and one third gravelly and sandy loam. The subsoil is about one third heavy retentive clay, and the other two-thirds porous limestone gravel, occasionally limestone rock, and in a few situations a red sand, not however ferruginous nor injurious to vegetation.

VALUE OF LAND.

The value of improved farms in the front five concessions of the front Townships is from £1 to £10 per acre—say average £7. From that

to rear of second range of Townships from £3 to £6—average about £3 15s., and for improved farms in the rear Townships from 25s. to £3 per acre—average £2; and for wild lands from 5s. to 30s., according to quality and locality. The Government price is 8s. per acre.

AGRICULTURAL SOCIETIES.

It is about ten years since the first County Agricultural Society was established. This was followed in a few years by the establishment of Branch Societies, but not until lately have they effected much good.

As the working of them becomes better understood and experience is acquired in their management, the amount of good which they do extends in an increasing ratio. The Agricultural mind required time to prepare it to receive knowledge, but the fruit is now every year improving in quality and abundance.

The good which they have done in this County is now very apparent, and truly gratifying to those who have been connected with them since their formation.

These Societies have enabled the Farmer to procure seeds of various kinds from a distance, giving him the benefit of a change which his private unaided means could not accomplish.

By the association of numbers together, they have been the means of creating a rivalry and competition and honourable emulation in the management of farms far more than the mere desire of obtaining *money* premiums creates.

They have enabled him to import and cause the manufacture of labour-saving machines of the best description.

They have enabled him to procure at an easier rate clover seed and plaster to increase the quantity and quality of winter food for cattle—they have enabled him to pay for the importation and use of the best descriptions of sheep and cattle to consume the extra food so procured—have enabled him, by associating with

his brother Farmers, to hear and to communicate an interchange of knowledge and experience in Agricultural matters; and by the concentration of a general fund for particular objects, have enabled him to devote more time and attention to domestic manufactures of butter, cheese, woollen cloths, satinets, blankets, counterpanes, shawls, socks, and even carpets—being assured that he will be remunerated for such extra attention, not merely by the money premiums given, but by the very notoriety which the association of numbers does not fail to secure.

They have enabled the farmer in the same way to improve the breed of horses, and also to cultivate finer fruits and vegetables, and they can and will be made the means of enabling him to diverge into the growth and cultivation and manufacture of varieties of crops, such as flax or hemp, or sugar beet, which it may become necessary to cultivate should the wheat crop continue to prove a failure, or of so low a price as to be unremunerating—by enabling him to procure this *joint* pecuniary means, the required seed or machinery for preparing these new varieties for market.

Another advantage which they have is that they facilitate the dissemination of knowledge through the means of publications such as the *Agriculturist*, *Hind's Lectures*, and other useful works; many of which, Societies are in the habit of subscribing for, and have through their *associated* funds more extended means of disseminating than private individuals unassociated could possibly enjoy. Combinations or associations of men can always effect much more good than individuals separately. Connected with the County Society were five Branch Societies, viz.:

Name of Township Society.	Amount subscribed.	Proportion of Grant.	Number of members.
	£ s. d.	£ s. d.	
Sydney,	9 10 0	14 15 0	38
Thurlow,	12 15 0	20 0 0	51
Tyendinaga ..	19 5 0	30 0 0	77
Rawdon,	6 15 0	10 10 0	27
Huntingdon, ..	12 0 0	18 15 0	48
	£60 5 0	£94 0 0	241

In addition to these 241 members there were 215 members of the County Society, and the largest amount allowed by Government to each County, viz., £250, was received therefrom and expended in premiums for every variety of farm produce, stock, implements, and domestic manufactures, and the importation of seeds, plaster, live stock, &c.

LIVE STOCK.

Durham and Devon cattle have been in the County for about eight years—the latter seem to be the most appreciated; but the Society

last autumn purchased for £55 a full bred imported Ayrshire Bull, the service of which is to be free to all members. The Society is not yet sufficiently acquainted with the advantages of this breed of cattle to be able to speak with certainty as to the value; but, from appearances and information obtained from other quarters, they are of opinion that the Ayrshires will prove the very best milkers; and butter and cheese being staple commodities, the prices of which are almost always remunerative, the Society have great hopes that the propagation of this breed will effect much for the Farmer, provided he increase the growth of green food and clover to afford the extra nourishment which all imported stock requires, and in fact all stock other than native Canadian.

SHEEP.

The Society has also imported a considerable number of Leicester and Southdown sheep, and find that by crossing them, they have both in carcase and fleece what is more serviceable to the country than any other description of sheep. The average weight of fleece of this improved breed, when well taken care of in winter, is about 4 lbs., and the carcase from 15 to 20 lbs. per quarter, the mutton of very excellent quality, the wool quite fine enough for domestic purposes, and the animal hardy and not subject to disease of any kind.

HORSES.

The County abounds in beautiful and excellent horses of every variety of breed, there being 6966 of all ages. Many are sold to the Americans at good prices, ranging from £15 to £30 each, and one or two at £35 each. The rearing of good horses, which is much encouraged by the Society by handsome premiums, is at present one of the most profitable of the farmer's pursuits, the prices given for them paying better in proportion than those for any other species of stock.

IMPLEMENTS AND MACHINES.

Having many and extensive foundries in the County, the competition has been so great that the farmers are supplied with the very best descriptions of implements and machinery of all kinds at very moderate rates. We have had a wheat drilling machine for some years, but the farmers who used it did not perceive any benefit to arise from its use, and have hitherto adopted the old broadcast system of sowing in preference. We have also ploughs of every variety. The improved Scotch (the mould for which was made by a farmer of the name of Peter Spence, resident in the County), and the Prescott ploughs appear to be highly prized and are in very general use. The matter of weight or lightness of draught is much better understood

than formerly, and in fact all our implement manufacturers keep pace with the most important improvements in their several branches; our threshing machines and separators are of the best known; and latterly we have procured concaves for threshing out clover seed, which are much improved and which work most effectually, threshing out and cleaning for market ten or twelve bushels in a few hours.

MANURES.

There has been very little attention paid to manures in the County other than piling it in the yards in which it is made in order to create fermentation and destroy the seeds of weeds which may be amongst it, and drawing out in summer on to the summer fallows which it is still too much the custom to have. There are some farmers, however, and the number is increasing every year, who draw out their manure in the autumn and plough it down so as to have the land early ready for drilled crops—Indian corn, potatoes, turnips, mangel wurtzel, &c.; under this procedure they seldom fail to have good drilled crops, and these are in fact the foundation of all good farming, both because the crops themselves are the most remunerating, if sold in the market, and they leave their blessing behind them in the shape of improved land, improved cattle, and increased and improved manure, a harbinger of still further progress. It is much to be regretted that there is no attention paid in the County to the saving and preserving separate the liquid manure, which is so much more beneficial than the fæces.

The Society have turned a great deal of attention to the furnishing of plaster for application to clover, corn, pease, mangel wurtzel, &c., and its members have found very extended benefit to arise from its use. It may perhaps be termed rather a stimulant than a manure. It appears to draw down the dew of Heaven upon the plant and to retain it there long after it has disappeared from portions of the land not sowed with it. It is in fact the only chemical artificial stimulant which we have, and it can be had in the County at 4s. per bbl. of 300 lbs. It supplies the place in some degree of the artificial manures so easily procured in the Old Country, such as guano, bone dust, oil cake, &c., and after a top dressing of plaster, the land is very much improved for the reception and growth of the succeeding crops upon the principle that a good *smothering* crop of clover or pease is beneficial to the land, whilst a poor crop of the same is injurious to it. With regard to bone dust, it is much to be regretted that in a country where so much meat is used in proportion to the population, the bones should be allowed to go to loss when it is known that they are so very enriching to the land, and when applied to the growth

of turnips, so certain to produce the finest possible crops. The Society have it in contemplation to offer a premium for the best ton of bone dust.

DOMESTIC MANUFACTURES.

The Society has also turned much attention and devoted considerable sums to the encouragement of domestic manufactures, which have reached a high state of improvement. There was at the last County Show a very large display of fulled cloths, satinets, shawls, counterpanes, blankets, &c., and of very excellent description.

Within the last year there were manufactured within the County, by and for the farmers, exclusive of what the manufacturers made on their own account, 22,712 yards of fulled cloth and 52,298 yards of flannel, both together amounting to $2\frac{1}{2}$ yards for every individual in the County, the population being 31,977. A very large proportion of this wool, probably $\frac{7}{8}$ ths of the whole, is spun at home at the farm houses—much of it is also woven by the farmers and their families; the price of weaving is from 5d. to $7\frac{1}{2}$ d. per yard, the latter price being given for checks and difficult patterns; the price of fulled cloth is from 3s. 9d. to 4s. 6d. per yard; that of flannel of checked patterns for women's wear from 2s. 6d. to 3s. 9d. per yard, and that of plain home made flannel from 1s. 9d. to 2s. per yard. These prices are fully one-third lower than they were five or six years ago; but after deducting the cost of carding, weaving, dyeing, &c., the farmer realizes from 1s. 1d. to 1s. 6d. per lb. for his wool as it comes from the sheep's back—average probably 1s. 2d. per lb. There are in the County 34,936 sheep, being 21 to every 200 acres occupied, and 92,420 lbs. of wool, being 2 lbs. $10\frac{1}{2}$ oz. per fleece. Calculating the fulled cloth at 4s. per yard, and the flannel of all kinds at 2s., the amount is £9,772 4s., showing that this is not an unimportant branch of our domestic manufactures, and this is independent of what the carding mill owners make on their own account.

LINEN AND FLAX.

As to linen there were only 125 yards made within the County. The climate and soil seem to be well suited for the growth of flax, but farmers will not go into the cultivation of it until they see some prospect of being able to get it scutched and prepared for market.

If the Canada Company imports a model machine for scutching, of simple construction that could be attached to a common horse power, there is no doubt that many more of them will be immediately made and the crop soon more extensively cultivated.

SUGAR.

We have as yet no manufactories in the

County for making beet root sugar; our capabilities of producing beet root very abundantly, can no longer be doubted. It is one of those larged leaved succulent plants that grow so luxuriantly and speedily in our climate that it can be produced at 15s. per ton, so as to realize a fair profit to the farmer, and at this price the experience of Germany, France, and Ireland proves that sugar of first rate quality can be produced at 3d. per lb., and perhaps even 2½d.; the machinery required is simple and inexpensive, and the Society would, perhaps, find it advantageous to encourage its erection by giving a handsome premium for the production of a good home made article, and will probably take the matter into consideration.

The maple sugar made within the County last year was 115,469 lbs., i. e. 57 tons, 14 cwt. and 69 lbs., rather more than 3½ lbs. for every individual in the County, and yet the consumption of imported sugar is so very great as to merit the attention of every Society to procure a home supply from beets. The importation is about eight times the amount of that procured from our maple trees.

BUTTER AND CHEESE.

The total quantity of Butter made in the County is 623,675 lbs. and cheese 83,279 lbs.; and the number of milch cows is 10,082, making 62 lbs. of Butter, and 8½ lbs of cheese per cow—equivalent to 67 lbs of butter per cow per annum.

The price of butter varies from 6d to 1s per lb., and cheese from 4½d to 7d, according to the ratio that the supply bears to the demand. Both are made of excellent quality in the County and in fair demand at almost all times. This quantity amounts to 19½ lbs of butter for every individual and 2¾ lbs of cheese.

FOUNDRIES.

Having alluded to our implements and machinery before, it may be requisite only to observe that in the abundance and excellence of our Foundries, the County derives very great advantage, because not only are good labor-saving machines *in themselves* of vast importance to the Farmer, but the facility with which he procures them, without having to go to a distance for them is a very great saving of time and expense.

CARRIAGE FACTORIES.

In addition to Foundries we have extensive and numerous Carriage Factories; and nothing shows the prosperity of a county more than the increase of the number of pleasure carriages. They are all built and paid for from surplus money and surplus time, and would not be built if the *exigencies* of the County demanded the time and money. Twelve years ago there were

not twenty pleasure wheel carriages in the County, and now there are upwards of seven hundred! Concomitant with these is the proportionately increased demand for harness and harness leather, much of which is made within the County.

POTASH.

Another very important article of manufacture is Potash. The export of this article in 1851, was 2,657 brls. which at an average of £7 per brl, brought into the County £18,599. The abundance of lime in the County enables the Farmers in the back concessions to manufacture *Pot* ashes;—*Pearl* ash being seldom made here.

LUMBER TRADE.

But by far the most important manufacture of the County is that of lumber. During last season there were exported from the County above 14½ millions of feet of sawed lumber—all to the American market.

This afforded employment to many hundreds of laborers who are home consumers of Agricultural produce, fulled cloth, &c., and afforded also a most extensive outlet for the sale of coarse grain, Hay, Pork, &c., which have realized very fair prices to the grower.

This amount of lumber at £2 per 1,000 feet, brought into the County £29,101 7s 2d, and is a manufacture which is rapidly increasing, as the County affords an endless supply. This is exclusive of a very large amount of square timber which was rafted to Quebec, and which probably produced about a similar amount of money.

By referring to the tabulated form of averages given herewith, page 199, and carefully compiled by leave of the Census Commissioner, it will be observed that the average of the wheat crop is extremely low. The total acres being 27,082—total bushels 265,075; the average being only 9 bushels and 49½ lbs. of wheat per acre. To account for this it must be observed that the Weevil has been very destructive, having been two years in the County, and in its journey westward has reached about the centre of our western tier of Townships, some few instances have occurred of its having been found beyond that limit. We cannot but expect that next year it will be still more destructive; one fact, however, is well established, that in *early* situations, on *early* spots, where the seed was sowed *early*, there was little or no weevil. In low, damp, late situations and where late sown, it has been extremely destructive, especially in the Eastern part of the county, where it first appeared.—This important fact ought to be well remembered by our neighbours to the West of us, where they will have it undoubtedly in a very short time, and exertions ought to be used by them to sow

early, and early kinds of seed, to drain the land well and make small ridges, and otherwise expedite the growth as much as possible. The early sowed Sole wheat escaped last year, in many instances, in the very centre of the weevil's destructive ravages. The maggot is generated from a fly blow deposited in the blossom by a very small greyish fly with a small stripe of orange down the back, and it is most busy when the wheat is in full blossom, about the first of July.

Another way of accounting for our unusually low averages of wheat is—that a great deal of our best and earliest, being unprotected by snow last winter, was actually killed by the intensity of the frost—not wintered out as is common in Spring, but actually killed in the depth of winter; there being some few days when the thermometer stood 16 degrees below zero, and no snow to protect the wheat in open situations.

Another reason is that the number of acres of wheat being too large a proportion to the acres of cultivated land, in proportion to our means of manuring. There are 27 082 acres of wheat and 127,876 of cultivated land, making about two acres of every nine, or 22 in every 100 under wheat.

These bad crops and present low prices will give a great check to the growth of wheat, as farmers must turn their attention to other branches of agriculture.

The actual cost of raising a bushel of wheat (even with an average crop of 17 bushels per acre, the usual average), is 3s 6d per bushel. Thus—on the summer fallowing system almost universally adopted in this County—the expense is—

To two years rent on interest of value of cleared land at 10s per acre, the cleared land on each farm having to pay interest for the wild land - - - - -	£1 0 0
To one-third of expense of manuring the land, the other two-thirds being charged to the following crops at 25s per acre -	0 8 4
To Seed, seven pecks at 4s. per bushel - -	0 7 0
To three plowings and draggings and rolling and water furrowing - - - - -	1 0 0
To cradling and binding an acre at 5s per day, for men boarded - - - - -	0 6 3
To drawing in, threshing, cleaning, and taking to market at 6d per bushel - -	0 8 6
	£3 10 1

Deducting 10s for straw, this leaves the actual cost of raising an acre of wheat £3, which at 17 bushels is as nearly as possible 3s. 6d. per bushel.

The average price this season has been only 3s 4d, so that the farmer has not even laborers' wages at this price—but when the average is unfortunately (as it is this year) less than ten bushels per acre, the loss upon the wheat crop is

about 24s per acre; the cost of raising an acre of *poor* wheat being very nearly the same as that of raising an acre of *good* wheat. The rent, seed, ploughing, dragging, cradling, binding, and drawing in, and cleaning, being exactly the same, the threshing and taking to market only being a trifle lower, but always counter-balanced by the *quality* being also deficient.*

Spring grain, Barley, Peas, and Oats, and in some cases Indian Corn, and also Hay have paid the farmer much better than wheat this year, the great increase in the lumber trade has created a great demand for coarse grain and Hay.

POTATOE CROP.

The great failure in the Potatoe crop is unaccounted for by the most scientific men of all countries and still remains a mystery. Liebig himself is quite at a loss—he supposes it to be occasioned by something peculiar in the *air*, but as the disease is over the whole world at the same time, is it probable that the air *everywhere* could be infected? This at all events we know that our average crop which used to be 180 bushels, is this year only 50 per acre.

The average expense of raising an acre of Potatoes stands thus—

One year's Rent or Interest	£0 10 0
Three ploughings and draggings.....	1 0 0
One third of Manure.....	0 8 4
Seed 12 bushels at 2s.....	1 4 0
Moulding, cleaning, and weeding per acre..	0 5 0
Ploughing out and storing 180 bushels.....	0 15 0
Taking to market at 2d. per bushel.....	1 10 0

Total expense of cultivating an acre of Potatoes.....£5 12 4

* The extremely low average of wheat referred to by the author, should be regarded as purely *exceptional*; and the causes which have produced such a result in the County of Hastings, must be understood as operating within limited areas. The weevil wears itself out in the course of a few seasons; and much lies in the power of the cultivator to arrest or modify its progress, as stated in the report. It is but seldom that wheat is so extensively killed in winter, in the manner described, even in the coldest and most exposed localities of the Province. And we believe that there is no portion of this vast Continent better adapted, both in point of soil and climate, to the production of wheat,—and other ordinary agricultural cereals, than UPPER CANADA: but under altered circumstances, chiefly of a fiscal nature, originating with the Mother Country, it now behoves our farmers to pay more attention to articles which hitherto have been little thought of, but which may be made of great service in a more comprehensive, ameliorating, and profitable system of Husbandry, which is, we have good reason to hope, on the eve of being gradually and generally introduced. Old Country readers should remember that the *Western Peninsula* of Canada, enjoys a winter not only much less severe, but a month or six weeks shorter, than the Eastern portions of British America, and the North Eastern States; and affords a wide and most encouraging field for the profitable employment of Capital and intelligent, persevering Industry.—[EDITOR.]

If an average crop thus amounts to 7½d per bushel, but with an average of only 50 bushels the cost is 2s. per bushel; when the price is even 1s 3d, and the crop an average one, they are the most profitable of all crops.

INDIAN CORN.

The crop of Indian Corn for 1851 is also short of an average, the early Spring being very cold and much of the seed having perished in the ground. The stalks are of considerable value for feeding cattle, and when Pumpkins are grown along with it, an average crop is considered remunerating.

FENCES.

One word with regard to fences, the permanence and security of which are of such importance to every farmer.

The County possesses an abundant supply of White Cedar, which, when well put up, forms a substantial and permanent fence.

Many of our farmers have adopted the plan of driving in two sharpened cedar stakes, one on each side of each angle of the common serpentine fence, confining them above with a piece of board having two holes bored at the required distance to admit the stakes and then laying a rail over these pieces. By this simple and inexpensive method the fence is perfectly secure, never being blown down by the highest gales, and for general agricultural purposes is certainly the best fence that can be built.

IRON ORE IN MADOC AND MARMORA.

It may be well further to observe in this County Report that in two of the Townships—Madoc and Marmora—there is an unlimited supply of Iron Ore of very excellent quality, containing from 30 to 50 per cent of a first rate description of Iron. The Marmora Foundry Company have expended large sums of money, and there are at present Buildings and Works erected and ready to be put into operation, and the Companies interested having put them in order are anxious to procure tenants either to rent or purchase.

The Railroad to Georgian Bay if it be built will pass within five miles of the Marmora Works, and also near the Madoc Works.

PLANK ROADS.

Independent of projected Railroads which are likely soon to be put in operation, the County has within itself, made 27 miles of Plank and Gravel Road within the last year in the most desirable situations where good roads were most required, and there is quite a spirit of emulation in the County to possess good roads. In two or three years we shall have them extending in every direction over the whole County.

When the Grand Trunk Railway is completed which there is now every prospect of, the

County of Hastings will maintain a most desirable position. The richness of her soil—the richness of her ore—the abundance of her water power—the Intelligence and Enterprise of her Inhabitants—her local position—her prodigious export of Bread stuffs and Lumber—her never failing supply of this latter valuable commodity—her immense home consumption of farm produce—her beautiful and navigable Bay, forming her southern boundary—all these will draw public attention to Hastings as an important agricultural and commercial County and there is little doubt but that she will continue to advance as she has hitherto done and even with more rapid strides as she becomes better known.

This report having been duly submitted to a meeting of the Directors of the County Agricultural Society was found to contain “a *truthful view* of the agricultural condition and industrial pursuits and prospects of the County,” and is respectfully submitted to the Agricultural Association of Canada West.

See tabulated form below, carefully calculated and compiled by leave of Census Commissioner, and page — containing information, obtained from Customs Department of the Town of Belleville.

B. F. DAVY,

President of the County of Hastings Agricultural Society.
March 30, 1852.

Exports from the County of Hastings to the United States during 1851.

Articles.	Quantity		Value.		
	cwt	qr lb	£	s.	d.
Butter.....	2	2 14	7	7	0
Oats.....	13,863	Bushels.....	828	17	0
Flour.....	2,589	Barrels....	2,476	13	0
Rye.....	4,804	Bushels....	499	5	0
Grass Seed.....	890	do.....	216	10	0
Peas.....	11,727	do.....	1,299	9	6
Fish Salted.....	7	Barrels....	8	15	0
Wool.....	12,723	lbs.....	686	1	9
Potatoes.....	118	Bushels....	12	5	0
Barrel Hoops.....	44,500	.....	25	0	0
Shingles.....	167	M.....	108	4	0
Spokes.....	11,480	.....	22	18	3
Laths.....	679	M.....	245	2	6
Sawed Lumber....	14,573,535	feet....	29,101	7	2
Cedars.....	286	cords....	103	10	0
Saw Logs.....	2,800	.....	700	0	0
Cranberries.....	5	Bushels..	2	10	0
Potash.....	68	Barrels....	476	0	0
			£36,819 15 2		

Produce Shipped from Belleville to various parts of the Province of Canada, during the year 1851.

Flour.....	17,954	Barrels.
Wheat.....	36,851	Bushels.
Peas.....	10,851	do.
Butter.....	566	Kegs.
Pork.....	321	Barrels.
Ashes.....	2,589	do.

Potatoes	34 Bushels.
Lard	14 Kegs.
Grass Seed	330 Bushels.
Cattle	348 * Head.
Sheep.....	20 † Heed.
High Wines.....	455 Puncheons.
Wrapping Paper	131 Bundles.
Iron.....	102 cwt.
Wool.....	20 Sacks.

* These only include what are shipped by Steam-boat, great numbers are driven through.

† Do. do. do.

STATEMENT OF CROPS AND PRODUCE FOR THE COUNTY OF HASTINGS, FOR THE YEAR 1851.

COUNTY OF HASTINGS.	Township.	Population	AVERAGE PRODUCE PER ACRE.										AV. PER COW.		AV. AGE FULLED PER FLEECE		FLAN-NEL.
			WHEAT.	Barley.	Rye.	Peas.	Oats.	Bk. Wh.	In. Corn.	Potatoes.	Turnips.	Butter.	Cheese.	Wool.			
			Bsfs. lbs.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	Bushels.	lbs.	lbs.	lbs. oz.	Yards.	Yards.	
	Sidney	4574	12—3	20	10½	17½	26½	19	23½	50	180	65½	22½	2—15	5202	9403	
	Thirlow	4469	9—7	20	12	15½	25½	19	21½	37½	87½	69½	11½	2—11	4083	8693	
	Tyendinaga ...	6200	6—5	23	11	15½	22½	17½	22½	38½	100	52½	1½	2—11	4673	11057	
	Rawdon	3097	13—30	13	10½	16½	24½	15½	18	53	158	58½	2½	2—9	2966	7120½	
	Hungerford ...	3124	7—20	20	9½	10	16½	10½	8½	45	95	40½	1½	2—3	920	3618	
	Huntingdon...	2548	11—23	18½	9½	14½	20½	12½	17	51	130	61½	2½	2—12	2689	6202	
	Madoc, Elzerri } and Tudor. }	2761	10—47	10	8½	11½	22½	10½	13	71	110	63½	3½	2—12	1530½	4480	
	Mamora	635	12—0	15½	10	13	26	6	13	56½	190	34	2½	3—9	649	1725	
	Belleville Town	4569															
	Total Population	31,977															

N. B.—These calculations do not include the produce raised in Belleville, which, however, is very trifling.

what is made by manufacturers in Belleville, on their own account probably 20,000 yards.

Total Maple Sugar 115,469 lbs., being upwards of 3½ lbs. to each Inhabitant.

Total Sheep 34,936, being 21 to every 200 acres occupied, and 27 to every 100 acres cultivated.

Total Wool 92,420, being 2 lbs. 10½ oz. per fleece.

Total acres of Wheat 27,082, being about 2-9ths of all the cultivated land, or 22 acres in every 100.

Total bushels of Wheat 265,075, being 9 bushels 49½ lbs. per acre; being 8 bushels and 2-7ths for each Inhabitant.

Total Beef 1,762 barrels.

Total Pork 12,600 barrels.

Total number of Horses of all ages, 6,662—independent of the Town of Belleville which contains 304 horses, and 335 cows.

Total number of Cows, not including Belleville, 10,082; Total pounds of Butter, 623,675; Total pounds of Cheese, 83,279; making 62 lbs of butter and 8½ lbs of Cheese per cow, equal in all to 67 lbs of Butter per Cow per annum, independent of that made in Belleville which is 6090 lbs of Butter.

Total land, occupied 332,349 acres, being 10 2-5th acres for each individual.

Cultivated acres 127,876; Wild, 204,473; being four acres for each individual in the County.

Total land under crops 95,096 acres, being about ⅓ ds. of all the cultivated land,—the other third being under summer fallow and pasture and being about 2⅓ acres under crop for each Individual in the County.

Total Paper made in the Town of Belleville, forty tons.

Total Flannel and Cloth made in Belleville by manufacturers, about forty thousand yards.

Total pairs of Lasts manufactured—fifty thousand.

Total Sashes manufactured by machinery—200,000 lights, and 1,000 sets of blinds.

Number of Grist Mills in the County—20.

Number of Saw Mills in the County—47. Four of these Steam Saw Mills, one Grist Mill, and four Saw Mills in the course of erection; other Mills in the County for Carding, &c., &c., about 33.

BURNING OUT STUMPS.—Where there are but a few stumps in a field the stump machine cannot always be used advantageously, and the expense of applying it would exceed the advantages. I have found that large stumps which it is not practicable to remove by ordinary means, may very easily be got rid of by the following simple process. After a period of dry weather, when the exposed portions of the stump are dry and tindery, cover it with a quantity of dry combustible matter, such as shavings, small sticks of wood, rubbish of any kind, and sprinkle over and through the mass, a few pounds of rosin, or a bucketful of tar. Over this place a close and compact laying of turf, grass side in, in the same manner as the covering is applied to a coal pit, and ignite the wood through an opening at the base—a hole being left at the top to produce the requisite draft till the fire is fairly kindled. Manage just as you would were you burning a coal-kiln, and let the burning continue till the stump and its roots are completely consumed. The ashes will make a good top-dressing for the adjacent soil, and the obstacle will be removed effectually, and at a small cost. An hour's labour will do it.—*Germanstown Telegraph.*

Total Fulled Cloth 22,712 yards, total Flannel 52,298½ yards, taken together, these give more than 2½ yards for every individual in the County.—This amount of Fulled Cloth does not include

COUNTY OF HASTINGS AGRICULTURAL SOCIETY.

1851.	Dr.	1851.	Cr.
	£ s. d.		£ s. d.
To balance on Hand from 1850,	2 7 9	By amount paid Township Societies,	165 15 0
do Amount rec'd subscriptions for 1851,	106 0 0	do Agriculturist Newspaper,	12 10 0
do Government Grant,	250 0 0	do Sundry Premiums,	120 6 3
do Proceeds of sale of sheep,	8 1 10	do Secretary's Salary,	5 0 0
do Montreal Premiums,	20 0 0	do Old balance on Sheep,	4 14 4
		do Reduction to members in price of Plaster,	47 15 3
		do do In price of	
		do Clover and Timothy Seed,	27 12 6
		do Cash on hand,	2 16 3
	£386 9 7		£386 9 7

These accounts are not as particular as they ought to be, but the Society is now *better organized*, and the Treasurer, *under the new Act*, will present a *more comprehensive* Balance sheet.

The Society found that they sunk too much money in the furnishing of five hundred barrels of Plaster, at a very low rate, and this year are not devoting half so large a sum for this purpose—not being able to afford it from other demands—at the same time they think it very important to encourage the growth of *Clover* as much as possible.

Names of Office Bearers of County Society for 1852 :

President—Benjamin F. Davy,
1st Vice President—Asa Yeoman,
2nd Vice President—Caleb Gilbert,
Secretary—Samuel D. Farley, Belleville,
Treasurer—Peter Robertson, Esq., Belleville,

Directors :

Robert Grass, David Jones,
Joseph Keith, Thomas D. Farley,
Joseph Canniff.

SIDNEY BRANCH SOCIETY.

	Dr.	1851.	Cr.
	£ s. d.		£ s. d.
To amount received from Parent Society,	74 18 2	By amount paid Loss on Seeds,	3 13 1½
		do Deduction on Plaster,	3 12 9
		do Premiums on Stock and Produce and Implements and manufactures,	48 16 9
		By Balance on hand,	18 4 7
		do Expense of Printing,	11 0
	£74 18 2	Total expenditure for 1851.	£74 18 2

Names of Office Bearers of Sidney Township Society for 1852.

President—John Gilbert,
Vice President—Stephen H. Hogle,
Secretary—Hugh McMullen,
Treasurer—Caleb Gilbert.

Directors :

Simeon Ostrom, Isaac B. Ostrom, John Row, jr.,
John S. Huffman, Robert Grass, Manly Roblin,
John Purdy, Elias Vanderwater, David Jones.

TOWNSHIP OF THURLOW AGRICULTURAL SOCIETY.

1851	Dr.	1851	Cr.
	£ s. d.		£ s. d.
To amount received from County Society	54 0 0	By amount paid Premiums for Stock—	
To Balance on hand from 1850.	3 0 0	fulled Cloth, Implements, Dairy-produce	53 0 0
		By amount paid costs of printing expenses	4 0 0
	£57 0 0		£57 0 0

This is all the information I have been able to procure, though I have repeatedly applied to the Secretary of this Branch Society, and to the Secretary of the County Society, to whom their report has not been sent

in. The 14th Section, XIV and XV Victoria excuses them for this year, and next year I hope there will be more particularity.

Names of Officers for the year 1852.

President—Solomon Vermilyea.

Vice President—Joseph Canniff.

Secretary—S. D. Farley.

Treasurer—L. V. Farley.

TOWNSHIP OF RAWDON AGRICULTURAL SOCIETY.

1851	Dr.			1851	Cr.		
	£	s.	d.		£	s.	d.
To Balance from 1850.	1	11	5½	By amount paid for printing	0	10	0
To amount of Subscription.	6	15	0	By amount paid for Clover Seed:	2	15	0
To amount received for Plaster.	0	15	7½	By amount paid for a Bag.	0	1	3
To amount received for Clover Seed.	2	0	0	By amount paid for Plaster.	0	10	0
To amount received from County Society.	17	5	0	By amount paid for premiums.	17	3	6
To Cash on hand.	0	7	8	By amount paid for expenses.	1	0	0
				By amount paid for Subscription to County Society.	6	15	0
	£28	14	9		£28	14	9

There is no Branch Society this year in Rawdon, the late members preferring to join the County Society.

TYENDINAGA BRANCH AGRICULTURAL SOCIETY.

1851	Dr.			1851	Cr.		
	£	s.	d.		£	s.	d.
To Balance on hand from 1850.	33	0	10½	By amount paid for Agriculturist.	6	5	0
To amount of Subscription list and Gov-				For Postage on do.	1	7	6
ernment money.	49	5	0	For Ploughing Match.	4	17	6
				For Expenses of Show and fairs.	1	4	7½
				For Printing.	2	2	6
				For Agent to procure Wheat.	6	1	10½
				For Discretionary Premiums, 1850.	1	3	9
				For Amount of Premiums, 1851.	51	14	9
				Balance on hand.	7	8	4½
	£82	5	10½		£82	5	10½

Names of Officers for the year 1852.

President—Michael Nealon, Esq.

Vice President—Wm. Emmons, Esq.

Secretary and Treasurer—Levi A. Appleby.

Directors:

Richard Lazierby.

Robt. Haight.

A. L. Roberts.

H. P. Ruttan.

Benjamin Morden.

J. O. Sullivan.

John Tulloch.

R. C. Goslin.

B. Murphy.

HUNTINGDON BRANCH AGRICULTURAL SOCIETY.

1851	Dr.			1851	Cr.		
	£	s.	d.		£	s.	d.
To member's Subscription.	12	0	0	By Premiums awarded for 1851.	24	15	6
To amount of Government Grant.	18	15	0	By Canadian Agriculturist.	3	0	0
				By Postage.	0	15	2
				By Printing.	0	12	6
				By balance on Hand.	1	11	10
	£30	15	0		£30	15	0

Names of Officers for the year 1852.

President—Henry Ostrom.

Vice President—Phillip Luke.

Secretary—Salzer Vantassell.

Treasurer—Owen Ketcheson.

Directors:

Andrew Findley.

Henry Ketcheson.

Timothy Clark.

James Haggartie.

James Archibald.

COMMUNICATIONS FROM C. P. TREADWELL, ESQ., SECOND VICE-PRESIDENT OF THE AGRICULTURAL ASSOCIATION OF UPPER CANADA, TO THE BOARD OF AGRICULTURE.

To the Right Honourable JAMES, Earl of Elgin and Kincardine, &c., &c., &c.

The Memorial of the Agricultural Society of the United Counties of Prescott and Russell,

MOST RESPECTFULLY SHEWETH,—

The diffusion of knowledge, both scientific and practical, in the art of Agriculture, is a subject of the first importance to Canada.

That we view, with no ordinary degree of satisfaction, the establishment of an "Agricultural Bureau" to effect this great object. That the establishment of a Model Farm at Toronto is also a matter of the highest consideration to aid this noble country in arriving at the greatest perfection in this most respectable, honourable, and necessary pursuit. At the same time we cannot conceal from ourselves the difficulties that our remote situation from Toronto places us in, as our youth cannot derive that advantage that must result from a practical teaching in connexion with a Model Farm from their inability to sustain themselves in the metropolis of the Province.

Under these circumstances, your memorialists would beg to bring under the favourable notice of His Excellency the propriety of establishing a Model Farm at the Eastern extremity of the Province of Upper Canada, as it was before the Union. And as the Ottawa offers many advantages that it should be located on that noble River under the patronage of the Government, and its operations be directed by a gentleman of highly scientific acquirements, together with a practical knowledge of the various Departments of Agriculture, and capable of analyzing all kinds of soils, and of delivering lectures on the same, and that a Committee of five be appointed by the Agricultural Bureau to carry it into immediate operation.

To make such a Farm of the greatest possible service to the public, your memorialists would beg to make a few suggestions, viz. :

1. That there should be an Agricultural Library.

2. That there should be a Seed Store and Warehouse for the sale of improved Agricultural implements.

3. A Nursery and Garden for the purpose of raising trees and seeds.

The great benefit to be derived from such an establishment, and the testing the qualities of grains, grasses, and roots, the different kinds of soils, and their adaptation to the different kinds of produces, the proper kinds of ploughing for

each and time of sowing, as well in reference to the grains now in use as to those that may be imported hereafter; the cultivation of the beet and hemp and the improvement of the different kinds of horned cattle, sheep, and swine, as well as the numerous kinds of farm-yard fowl.

Confident, therefore, that the general interests of this section of the Province would be materially benefited by the establishment of such a Farm, your memorialists would respectfully submit the consideration of it to your Excellency, and trusting that it may meet your Excellency's approval, your memorialists, as in duty bound, will ever pray.

(Signed) CHAS. P. TREADWELL,

President of the Agricultural Society
United Counties Prescott
and Russell.

L'Original, 23rd March, 1852.

L'ORIGINAL, 15th April, 1852.

SIR,—As the subject of Model and experimental Farms, to be sustained either wholly or partly by grants from the Provincial Treasury, is occupying the attention of the Government, and of the public in general, I beg to make a few remarks that I hope may not be censured as inapplicable or out of season in reference to these very interesting subjects.

I consider the Model and Experimental Farm to be two entirely different matters, and to be treated on separately. In reference to the former, I will make a few observations, and hope that they will be followed by persons more competent to improve the subject. I would recommend that £50 be granted to each County holding an Assize and having a good County Grammar School, to the farmer cultivating in the best manner not less than fifty acres, exclusive of pasture and woodland, and also £5 for the best cultivated five and not more than ten acres, to give a fair opportunity to the poor man—the Professor of Agriculture to regulate the scale by which the farmer contending for these prizes shall be adjudged and these requirements should be taken as the basis for awarding these premiums—the objects to be taken into account should be the farm house, offices, and all out-buildings for the securing of the crop and for feeding the different kinds of stock with the utmost economy, manner of laying out the farm and field, having a proper proportion of the whole, proper manner of fencing, draining, whether surface or subsoil, laying out field for pasture, with the best means of obtaining water for each enclosure—the judicious location of the wood so as not to injure the standing crop by shading it or otherwise, and to adopt a system that the growth of a certain number of acres

will continue to furnish the necessary amount of fuel for a family. In reference to stock, great care should be taken to improve the ordinary breeds of the country, and then cross them with the best that are imported, and by these means obtain as good if not the best stock that can be raised in the world, climate considered. Poultry is a matter of consequence and should be attended to; the garden, nursery and orchard, should by no means be overlooked, and a rigid account kept of the receipts and disbursements of the farm. The profits of the establishment should of course belong to the owner; this being the case, it would naturally be managed with the utmost economy. These are my impressions of some of the requisites of a Model Farm.

The Experimental Farm I consider in an entirely different light. An extensive Farm of this description should be attached to one of the Colleges of Toronto, Montreal and Quebec, where the value of every kind of production which the particular section is capable of growing should be fully and fairly tested, together with the soil adapted to each kind of produce—the mode and time for preparing the soil, the amount of seed required, and the best manner of harvesting and preparing it for market; the producing of the most approved seeds should be carefully inquired into; a Seed Store, Agricultural Warehouse, and Library should be attached to the establishment; vegetable fruit and flowers of all kinds should be encouraged; the best breeds of horses, sheep and swine, should be imported and kept pure, and the best kinds of poultry should be introduced. A rigid account of the receipts and expenditures of each Department should be kept separately for publication, this being a public undertaking, it cannot be managed with the same degree of economy that would be expected from a private enterprise. In different sections of the Province remote from Literary Institutions of the higher order, miniature experimental Farms should be established in connexion with flourishing County Grammar Schools, where gentlemen of science having also a practical knowledge of things should be placed at their head. The principal of each should be one of the experts of the District, and it should be his duty to lecture before the Schools on Agricultural Chemistry; he should also deliver lectures in other sections and to furnish to the Agricultural Bureau at least two scientific papers annually, on the subject of Agriculture; he should also be appointed one of the Judges at the Grand Provincial Exhibition; the Farm should be rented and approved of by the County Agricultural Society, to be in connexion with the School; the stock and crops to belong to the person filling this situation; the experiments to be directed by the Agricultural

Bureau and Board, and a scientific account of them to be furnished for publication, and a careful account of moneys received and disbursed, also to be furnished; the produce of the farm to form a part of the salary for the remuneration of the Agricultural Professor, filling the situation of Farmer.

I have gleaned the foregoing observations from several sources; I acknowledge myself particularly indebted to Dr. Everett, from whose pen I send you a short paper, and who would fill our Professor's Chair should he be so fortunate as to get one; I feel also much indebted to Mr. Miller, Master of our County Grammar School, for his exertions in advancing the interests of education, and also of Agricultural science.

I regret that it will not be in my power to attend the next meeting of the Board of Agriculture at Toronto; but you will please lay this paper, together with copies of letters from Dr. Everett and Mr. Miller, which are herewith enclosed, and also the papers previously transmitted to you before the members of the Board when it shall have been convened.

I am, Sir,

Your most obedient Servant,

CHAS. P. TREADWELL,
2nd V. P. A. A. U. C.

George Buckland, Esq.,
Prof. Agriculture, Toronto University,
and Secretary to the Board of Agriculture.

POINT FORTUNE, 26th March, 1850.

C. P. Treadwell, Esq.

DEAR SIR:—Though I deem it probable that the Government will take the initiative in the matter of the Model Farms since the establishment of an Agricultural Bureau,—I will venture to throw together a few impromptu ideas relative to the subject; they are, however, only suggestive, for I have but a few minutes to write, and I had almost said less time to think. The outline would be something as follows:

1. The County Council and the Agricultural Society conjointly to select a site, to be purchased by Government.
2. The latter to choose the farmer.
3. The terms upon which said farmer is engaged to rest with the Government; the organ of communication being the President of the Agricultural Society; duration of engagement seven years; responsibility of farmer to the Government; any dissatisfaction expressed by a majority of Agricultural Society and forwarded to Government by President as above.
4. Implements of highest order to be supplied out of Legislative Grant.

5. Farmer to furnish one or more scientific and practical papers annually for publication in any form the Government may see fit.

6. Model Farmers throughout the Province to hold an annual Convention.

7. Model Farmer to furnish his own stock.

I deem the engagement as a highly responsible and involving character. The "status" which a man should hold in society you will appreciate; and at the foundation of the whole measure must be the consideration whether the Model Farmer shall be looked upon as the exponent of manual labour, or of scientific research.

I remain, Dear Sir,
Your obedient Servant,
(Signed) C. M. EVERETT.

L'ORIGINAL, April 10th, 1852.

DEAR SIR:—Availing myself of a few leisure moments, permit me to offer my opinion on the subject which has been and is now occupying the public mind in this neighbourhood; I allude to the establishment of a Model Farm. Although the Farmer in the Western part of our Province enjoys many advantages over us here, still, in my estimation, this section is not inferior to any part of North America that I have seen in the general quality of her soil, in the adaptation of her climate, and in her geographical situation and circumstances; and she has the further advantage of being more convenient to the only outlet we have to the Atlantic. The latter advantage gives increased value to her agricultural products, and should rouse in our favour a strong and powerful spirit of emulation and enterprise.

A regular system, therefore, of good and simple agriculture should be introduced into all its various branches; a careful attention to every description of domestic animals in breeding, selecting and feeding, should be attended to, and also a proper management of the Dairy; each and all these should be carried into effect. Such a course would not fail to be beneficial, and must show that the improvement of Agriculture is a matter of the most vital importance, not only to the tiller of the soil, but to every true friend of Canada.

The establishment of a Model Farm in this section of the Province, is fairly entitled to the consideration of our Government. The farmers here seem alive to the importance of such a measure, and hail with fond anticipation the working and object of the new Agricultural Bureau. A few days ago, I visited the farms

of two of our townsmen, J. Marston and A. Case. In many respects they could not be surpassed by any of our Western farmers; whilst, in others, they are decidedly superior. In a word, they might serve as models to their more humble neighbours. Mr. Marston's nursery contains upwards of 100,000 young trees, all in a good thriving state. Now, should the Government regard your exertions favourably, and place at your disposal means in aid of carrying a Model Farm into effect on the Ottawa, would not such a measure be a most desirable appurtenance? but, while thus addressing, permit me to call your attention to the resolution adopted at a public meeting of the inhabitants of this place, in January last, convened for the purpose of selecting a site for our new County Grammar School House, which resolution stated "that should a Model Farm be practicable, it would be advisable to attach its educational department to our Classical Seminary." I feel no hesitation in saying that not only would this scheme work well, but that it should be regarded as a *sine qua non*. Its want would be indispensable. I believe the Model Farm of Lower Canada has cause to regret that no provision is made in that way. Should you not, therefore, select your Farm as near our Institution as possible? I regard this consideration of the matter as important, and as a gentleman of high scientific attainments and capable of giving lectures from time to time, should the farmers of our County send their sons to study the art—as farming, from the science with which it is now treated, must be considered as such—should be appointed. Combining, therefore, the circumstances, present and prospective, I must say that no part of Canada is better prepared for self-exertion and more worthy of the consideration of Government than this neighbourhood. To you a debt of gratitude is due for your untiring exertion in order to promote and improve the status of the farmer, by introducing him to a systematic and scientific mode of cultivating the soil. Trusting that your efforts may be crowned with success,

I remain, Dear Sir,
Very truly yours,
(Signed) OLIVER T. MILLER.
C. P. Treadwell, Esq., &c., &c. &c.

THE ELECTRIC LIGHT.—This light is at length to be brought into practical operation. The Lancashire and Yorkshire Railway Company intend almost immediately to illuminate the several tunnels along their line by this powerful and now practical system of illumination. The adoption of the electric light at these points is not for experimental purposes, but for permanent use—all the difficulties which have hitherto beset the subject having been entirely surmounted.—*Mining Journal*.

The Agriculturist.

TORONTO, JULY, 1852.

THE CATTLE CONTROVERSY.

Some of our readers may possibly think that we are giving an undue prominence in our pages to the discussion of this subject. The introduction of Improved Stock is, however, a matter of the greatest importance to any system of advanced husbandry, and every facility should be afforded for a full and impartial exposition of the whole subject, that the people may clearly understand its various bearings, as they affect the interests of agriculture and the welfare of the community. It is now quite evident that Canada has reached a point in its Agricultural development, when Cattle raising and Dairying can be made more profitable, on a more extended and systematic scale than has hitherto obtained. And as the price of grain, particularly of our main staple,—*Wheat*, is likely to rule low for the future, the farmer must depend less upon that single article, for his money returns, than has been his wont, and devote more attention to other, and now happily more promising sources of profit, which have heretofore been comparatively neglected.

Such being our views, we have thought that the discussion of the adaptation of the various breeds of Cattle to the climate, pastures, and markets of this country might prove advantageous, both by eliciting facts and rousing the attention of our numerous readers to the vital importance and wide bearings of the subject. But in order to realize these advantages, it is quite essential that the question be treated, on all sides, in a comprehensive and truth-seeking spirit; and that all offensive personalities should be scrupulously avoided by those who engage in this kind of warfare. This, unhappily, has not been the case, to the extent desirable, in the present instance; and we embrace the present opportunity to inform our correspondents, who have taken, or may hereafter take a part in this controversy, that we cannot allow our pages to be made the vehicle of personal recrimination. Mr. Sotham commenced by setting a bad example, in questioning the motives of such as differ from his views;—and we think that upon a calm reconsideration of what he has written, he will see that his remarks on the character and judgment of Professor Low, of Edinburgh, and the late Mr. Youatt, betray a

recklessness of assertion and a most unwarrantable and offensive assumption, which in any other person than Mr. Sotham, we should say, was characteristic of anything but a candid, well-informed, and truth-seeking mind. We accept Mr. Sotham's laudatory remarks in reference to our "*impartiality*" on this question;—for we are conscious that we deserve them: our sole desire in this matter being the promotion of truth, so far as it can be really ascertained, and the common good of our country. And we cannot but believe, notwithstanding anything Mr. Sotham may assert to the contrary, that a large number of our respectable American contemporaries are actuated by similar motives. Men everywhere possess but imperfect knowledge of questions which do not admit of rigid demonstration, and are liable to be influenced, often unconsciously, by prejudice and self-interest. It is so unquestionably with regard to the relative merits of the different breeds of cattle. *Which* is absolutely *the best*, under the almost endlessly varying conditions of climate, pasturage, markets, &c., is a problem which no really judicious man will pretend to solve. Even when the question is restricted within well defined conditions, and a given locality, the judgment of no man, in the present state of our knowledge, particularly on this continent, is to be received as infallible.

Our pages will continue open both to Mr. Sotham and Mr. Parsons, or any one else, who may wish to contribute his mite to the common stock of knowledge on this subject;—*but on the condition that the articles be brief, and free from all offensive personalities.*

MODEL FARM OF LOWER CANADA.—We are much obliged to Mr. Kirkwood for his interesting communication, but deeply regret to hear that obstacles have arisen to the carrying out of the purposes contemplated by the Lower Canada Society in the establishment of a model and experimental farm. We had indulged the fond hope that such most important and praiseworthy efforts would have been crowned with success. And we hope so yet.

THE WOOL GROWER.—The proprietorship of this useful journal has, we learn, recently changed hands. Mr. Moore, of Rochester, formerly of the *Genesee Farmer*, and proprietor of that excellent weekly paper, "*The Rural New Yorker*," will henceforth publish the *Wool Grower*, which we observe is still to be under the editorial care of Mr. Peters, who is peculiarly well qualified for the task. We wish the new proprietor every success.

TOWNSHIP OF HAMILTON FARMERS' CLUB.

THE ADAPTATION OF IMPROVED BREEDS OF CATTLE TO CANADA.

REPORTED FOR THE 'COBOURG STAR.'

At a meeting of the Township of Hamilton Farmers' Club, held at Smith's Inn Court House, on Saturday May, 29th, 1852.

Patrick Rose Wright, Esq., in the Chair.

Present Messrs. J. Wade, Black, Bourn, Bennett, Alcorn, Masson, J. Underwood, Pratt, Newton, Sutherland, Brown, Smith, and Eagleson.

Mr. J. Wade, read the following essay:

Although the subject for discussion on the present occasion, may in some measure appear to be a work of supererogation, viz: to attempt to prove that which so many of the most intelligent and experienced Agriculturists of the age, hold to be an established truth.

Yet, while others may be found, who from not having been favored with opportunities of observation, and comparison necessary to form correct conclusions on this matter, it may still be found quite worthy of consideration. And when we reflect that our Province, was fifty years ago, little more than a wilderness; and that many of our practical farmers were brought up under the unfavorable circumstances consequent upon settling a new country, without having the privilege of seeing the improved systems which were in progress in other countries, much allowance can therefore be made for the prejudices they may very naturally have imbibed. But while we can cheerfully excuse prejudices arising in this way; there is another kind, far from being entitled to any such indulgence. And as the principle object in writing this paper, is to combat prejudices arising from any cause, it becomes necessary to trace them to their foundation. In the first place, as the word itself implies; judging without evidence: we shall soon find that the objection to improved breeds of Cattle or to any other kind of advancement, nearly always proceeds from parties who have never given the matter a fair trial. It sometimes proceeds from the enemies of advancement generally; but often from a feeling of envy, cherished by such as are always behind in improvement, against their more energetic and enterprising contemporaries. And it is both amusing and also annoying to hear the absurd charges brought against the progressive party. Attributing the praiseworthy endeavors of the friends of improvements to better themselves and families, to motives of pride, ostentation, and a wish to outshine their neighbours. And a rather eccentric neighbor of mine once vented his disapproval by denouncing *aristocracy* in Cattle, averring it to be quite bad enough among the human species without being carried to inferior animals. This kind of prejudice is often found where least expected; as for instance in the remarks about Stock made by the author of the prize essay, Mr. Hutton, to whom the Gold Medal was awarded by the directors of the Johnstown A. S., and which is published in the January No. of the Agriculturist. After admiring the methodical arrangement,

the practical and philosophical ideas, clothed in chaste and beautiful language with which the essay abounds, I was quite astonished when I came to the paragraph headed "One word about Stock," to find him so far astray even from the principles he set out upon. He takes for his motto the World renowned assertion of the celebrated Dr. Johnston, "He that causes two blades of grass to grow where only one grew before is a benefactor of his country." He then states "the changes which the power and susceptibility of cultivation are able to effect on the vegetable as well as on the animal kingdoms, are truly wonderful." And after proving to a demonstration what has been effected in the improvement of grain, roots &c. in that department of Agriculture, he seems quite to forget that the present improved breeds of Cattle are the results of a similar process of advancement, carried out on the same principles in the department of Stock. He then goes on to charge "individuals and societies with inconsistency and absurdity, in incurring expense in procuring improved Cattle, without providing the necessary keep." I can assure him if such is the case in his region it is not so generally, for all the breeders of improved stock, within the circle of my acquaintance are good keepers, and the man who would go to the expense of procuring improved Stock, without intending to keep them properly must be a fool; quite as much so as the man who would incur the expense of preparing his land for a crop, and then sow foul or inferior seed. And it would be quite as reasonable to expect a good return from such a course of action, as profit from cattle of any kind, without proper food and attention. The enemies of advancement commonly shelter themselves under the name of Conservatives. There is you are well aware, what is called a Conservative state of things, and also a progressive state. The first says "let well alone" and the other says what was well yesterday, is not the same to-day; the first argues it to be unsafe to proceed further, while the other says there is no limit to advancement. The two parties stand in my opinion, in the relative position that the drawing and the holding back parts of a set of harness hold to each other. In order to enable the horse to proceed up hill, and even on the level surface, it is necessary to furnish the drawing part, but as it often happens he has to go down hill, it is quite as imperative to provide for that emergency, consequently the breeching is provided. This in the way of illustration of course admits a check upon the advance party, to be quite necessary, and it is only when carried to the extreme that it becomes injurious. These preliminary remarks are only intended to show some of the causes of opposition to improvement, and I now proceed to the subject for this day's discussion, viz., "The adaptedness of the improved breeds of Horned Cattle or neat Stock to the wants of this Province."

Without meaning anything offensive, I might say by way of parody, on Mr. Hutton's motto: The man that causes two pounds of beef to be produced under the same circumstances, where only one was produced before, is as much a public benefactor, as the one who causes two blades of grass to grow where only one grew before. And

had Dr. Johnson lived a century later, thorough John Bull as he was, he would most probably so far have concentrated his axiom, as to have expressed it in my words, for as he was well aware that grass was only accessory to human wants in a secondary way, that is, by being turned into beef; and by multiplying the results of the grass improver, by the beef improver, the consequence would be four for one; and this far exceeds any thing the Doctor ever anticipated. That both these results have been produced within the last half century, few will be found hardy enough to deny. But while the improvement in the vegetable world is universally admitted, the improvement in the Stock department is only partially so; yet the principle which produced the improvement in the former, is of the same kind as is now at work to bring about improvement in the latter. The question now follows: will those improved breeds of Cattle, natives of a milder climate than ours—be able to withstand the cold as well as the breeds already naturalized? This question can be answered by asking what gives one animal the power of enduring cold more than another? Physiologists tell us that Nature provides for this, not only by clothing the animal with hair, wool, or fur, for outward protection; but also by enabling them during the summer months to store carbon in the shape of fat in the inside; to furnish fuel to keep up the inward heat necessary to circulation, and other functions during the cold season; consequently we infer that the animal possessing the best coat of hair or wool for outward protection, and the greatest power of assimilating its food into flesh and fat will possess the greatest power of resistance to cold. These principles admitted, the next question follows: do those improved breeds possess higher advantages in this respect than what is called the native breed? Although Mr. Hutton says “our old Canadian cows are infinitely superior to any of those fancy breeds” as he calls them, they produce more milk on poor feeding—they *stand starvation much longer!**—they are better suited to our climate—and are in every way much better—unless we change our system of feeding, and furnish warm and comfortable housing.” To use a sailor’s phrase “he may tell that to the marines the sailors don’t believe it.” And I will now appeal to his own candour to acknowledge, if the principles I have laid down are correct, and if it can be proved that a Durham steer or Heifer (I have no intention of entering into the relative merits of the different improved breeds or holding one kind to be superior to another; because my experience has been principally confined to Durhams) will during the summer months, under the same circumstances, lay on more flesh and fat than a Canadian one; which will be the most able to withstand the inclemencies of the winter? There can only be one answer, as the matter is self-evident; and that such is the fact I most positively assert, and this assertion will be endorsed, by every breeder of improved stock, on this continent, who understands his business, and has given the matter a fair trial. And when it has been proved, even in Great Britain, that the

improved breeds, will produce from 25 to 30 per cent more beef and milk, from a given quantity of food, than the old unimproved breeds; can we wonder if they excel in this country? It is well known that our domestic cattle are not indigenous to this continent; but must at some period have been introduced from the old world. And mostly previous to the time when men of science began to turn their attention to their improvement. And when we consider how little attention has been or could have been devoted to their improvement in the early settlement of a country like this; it ceases to be a wonder, that we find them the inferior mongrel race they seem; when put in comparison with the improved breeds. In fact we are almost surprised to find them as well as they are; and we are well aware they must fall infinitely short of the improved breeds in Britain.

But as I have already occupied so much of your time, and as I consider that the introducer of a subject is not called upon to do more than state his own individual experience, with something in the way of preface, I will now proceed to state the advantages improved Stock have been to myself.

It is now about 20 years since the Agricultural Society of this county first turned its attention to the importing of Stock; upon the broad principle, that if better breeds had been produced in other countries; (and being aware of the slow, tedious process, such things could be brought about by starting from first principles) it would be much more economical, as well as a much shorter course of action, to purchase even at high prices, improved animals, than to go through the same tedious process of producing them; consequently as early as 1832, our Society commenced importing new breeds from New York State; and after proving the results, for three or four years, they were so far encouraged, as to import again 3 bulls of the Durham breed; this of course was calculated to stimulate individual enterprise, if anything would. I was one of the first to avail myself of the advantage, and seeing clearly the benefit it would be, I entered into the matter myself; and merely as a speculation I have found that nothing I have entered into in the farming business has paid me so well.

It might be stated as an objection, that I had profited by selling as a breeder; and it may be true in one sense. But if I could not sell another animal in this way, and when I knew that the profits on the improved breeds whether for the dairy or the butcher, are not less than 50 per cent; my reasons for preferring them, may be easily accounted for.

I have led the native stock, and I have milked them; but as I have not kept the results in figures, I cannot state tabularly the exact difference. But this I know well, that it was hard work to make the best of our five or six year old Cows of the common breed up to six hundred weight of beef, hide and fallow; much harder than to make a four year old Durham Heifer nine hundred, with no better keep; and as for steers, I will stake any amount that I can make two four year old Steers of my own breeding weigh more than the best six year old Steers of

* QUERY—When did he try this experiment?

the native breed that can be found in our diggings.

Mr. Brown said he tried the Improved breeds; he thought that they weighed heavier than the common breeds but that those who raised the Improved Cattle, generally paid more attention to them than was paid to the common breeds. He thought it took more to keep the Improved cattle than the common ones,—thought the Improved breeds were better for beef, but had not found them so good for the dairy as the old native Stock.

Mr. Sutherland said he regretted he had not paid more attention to the Improved breeds of Cattle, he thought them easier kept over winter than the common Cattle, he thought that his half bred Cattle milked full as well as the native Stock, and if they did not turn out well for milk, he could always turn them easily into beef. He had at one time formed the opinion that the Improved breeds were more delicate in the constitution than the native stock, but he had quite changed his opinion, for he now thought the improved breeds were hardier than the native Stock, for he found that his half breeds always came out in better condition in spring than his native ones.

Mr. J. Underwood could not say much, he approved generally of Mr. Wade's essay—he had always seen the Durham Cattle turn out best both at home and here, that if he had an opportunity he would certainly improve his Stock, as he thought them the most profitable—that you could raise them to beef, years younger than the common kind. He preferred the Durham Cattle to the Devons.

Mr. Masson would not say much—would just state what he knew, which was that had he not Improved his Cattle he would have been John Masson across the Lake long ere this time; by improving his breed of cattle he was enabled to pay his debts, for had he not done so, he could neither have paid rent, wages nor Mechanics, the improved breeds will always come to more beef on less feed than the natives. When he brought a Butcher into his Stock he was always sure to pick the improved Beast and leave the native one, he thought that all the cattle that were crossed, seemed hardier in their constitution than the natives, he did not say they would live on less feed—but that they would do better on the same feed. It was the Devons that he dealt in, and he found that if on the first of May his Devons needed lifting, his natives needed carrying.

Mr. Alcorn said he thought that Mr. Wade's essay left little to say on the subject, he had had a good deal of experience among Cattle both in the old country and here, and he always preferred the Durhams—they fed so much easier, and brought so much more money when fat. He thought the Durhams were as good milkers as the natives or any other breed, he found no more trouble in wintering his Improved Cattle than his native ones. He thought his improved Cattle came out in rather better condition in Spring than his native ones, and they were all fed alike—could have a Durham Steer as far

forward at three years old as a native one at four—and though his stock was not so far improved as Mr. Wade's, and some other breeders, he was pressing forward as fast as he could, and was determined not to stop until he reached the very top of the tree.

Mr. Bennet said he had been more edified by Mr. Masson's speech than any he had heard this evening, he had been all his life long endeavoring to pay his debts, and now he should certainly try it by improving his stock. Speaking of their dairy properties, he had some half breeds and some natives, but he found his natives gave most milk, from what he had seen he thought the Durhams feed to more beef, said he had never had such good cows since he came down here, when in the Niagara District he had native cows that gave three pails full of milk a day.

Mr. Bourn said when he came here he did not expect to hear (nor had he heard) one word said against the improved breeds of cattle, it could only be from ignorance or prejudice that any one said ought against them; in his experience he found the imported cattle far preferable, for the dairy, he was not sure that the very highest blooded Durham was so good, for the dairy he would rather prefer a cross, he found that the half breeds did far better on the same keep than the natives.

Mr. Black could say little about the improved breeds, what he could say was, he was sorry he had not more of them, else he would have had more experience with them, he always preferred the Durhams, and thought that for feeding, they were more than a year ahead of our native stock, he could never bring up the natives to the weight of the Durhams, had fed more or less these three or four years, and found his own grade Durhams were far preferable to any natives he could buy, did not think Mr. Wade had over stated the properties of the improved breeds, had fed two heifers this winter (they were rather more than half bred) which was sold for fourteen pounds each in Montreal this spring, had fed twelve head of cattle last winter, some part Devon and some part Durham they were raised all the same, and a Devon one did best (he was from Masson's Bull). but then the Devon was a very quiet animal, and a quiet beast always feeds best, found no difficulty with regard to the constitution of the Durham cattle, thought them quite as hardy as the natives, would feed no other cattle if he could get Durhams, as to the dairy he did know much difference between the natives and Durhams, he had always found as great a proportion of good milkers among the Durhams, as he had among any other breed of cattle.

Mr. Eagleson, came for instruction, his attention had been turned more to clearing land, than to breeding cattle.

Mr. WADE said he was very much gratified that his opinions had been so generally approved of by all in this meeting who had had any experience in the matter, that his object in bringing forward this subject was to go away with the prejudice that still existed against the improved breeds of cattle, it was the same with cattle as

with every thing else, if you keep cattle keep the best, if you grow grain grow the best, if apples let them be of the best, as it took no more to raise a good beast than a poor one; so it took no more ground to grow a good fruit tree than a poor one, always in all kind of farming set up a standard of perfection, and if you cannot reach that standard come as near it as you can, as the object of the Collings and other improvers of the Durham cattle was principally beef and not milk, there might be some other breeds that were better for the dairy; the Ayrshire had been bred more for their dairy properties, yet from his own experience he would as soon select from the Durhams for the dairy as from any other breed as he thought he would have as high a per centage of good milkers among the Durhams as among any other breed.

Mr. P. R. WRIGHT said, the position I occupy to-day, entails the customary duty, of saying something on the subject now discussed, and in this case, although I regret my inability, I feel the duty a pleasant one; rendered so from two causes, viz: the admirable manner of introduction and the unanimity with which you have endorsed our essayist's opinions, confirming in my mind their correctness. When so many men, of practical experience, corroborate opinions, which bear manifest evidence of being founded on intelligent observation, patient investigation, and successful experiments; I say, opinions thus sent forth, must acquire an importance in the eyes of our brethren of the plough, and carry conviction, where the most brilliant and logical reasoning of the theorist would fail to produce the least salutary effect. We do not pretend to be anything, but plain common-sense farmers, met together for the purpose of collating our dear bought experience, and possibly assist in saving others from the errors and consequent disappointments into which we may have fallen; and if in publishing to the world, the proceedings of our club we fail to clothe our ideas in language sufficiently dandyfied for the hypercritic, we hold the belief of being sufficiently understood by the men with whom our endeavours in the cause of improvement will claim the deepest sympathy and interest. Gentlemen, your testimony to-day in favour of the progressive principle does honour to our club, it is another well directed bolt at the tottering fortress of prejudice, and its ignorant garrison, a few more well-directed assaults from men such as you, and the antiquated *donjon* must surrender; the cross-bows and the falchions of our ancestors are no match for the twelve pounder and Mimie Rifle. The Hereford, Devon. and Durham horns, will, like the ram's horns of old, shake the old walls to the dust, burying in their ruins the last vestige of prejudice, and its parent ignorance.

But whilst owning the power of precept, in combating and removing error, there is another means of accomplishing the same end, accessible to minds incapable of profiting, by the most profound logic, and that is *Example*—the old proverb, seeing is believing, must not be forgotten, few men can resist the evidence of ocular demonstration! I should like to see the effect produced *in the mind* of that stickler for

democratic Cattle, which Mr. Wade has so laughably introduced to us; by a walk in Mr. Wade's pastures some fine June morning, when nobody sees him, if the bump of comparison, has not been omitted in the construction of his caput, he must see, that his own animals are much smaller in size as well as worse conditioned, and probably he might be led to inquire the reason why Mr. W. keeps such beasts. I infer he knows Mr. W. to be a self made wealthy and independent Farmer, and consequently that most of his husbandry, must be connected with an eye to profit, if he would only believe this, and in his heart he must do so; although pride or self conceit may prevent immediate action, I would the ambition to desire a connection of a pure not be surprised to find by next June he had Durham Bull with some of his plebeian Cows, and were willing even to send a few to the Harem of the lordly aristocrat.

Mr. Masson's argument is certainly a powerful one, if by improving his Stock he has been enabled to *pay* and *save*, and we all know very well he does so, the man who does neither must be dishonest, if he does not try the same means.

Mr. Black's experience as a breeder and feeder is entitled to particular notice; his long practice in this branch of the Farmer's craft, in a County of Scotland where there are no *bad Farmers*, demand that I should specially direct attention to his statements.

I would now gentlemen add my testimony to yours, in favor of improved Cattle, and their perfect adaption to this climate, the prevalent opinion that they are constitutionally delicate, I hold to be fallacious—and that they require hot house cultivation equally so. I believe that without proper care and attention as regards housing and feeding, no animal can yield a maximum profit, and with these, the Improved breeds of Cattle are as much the superiors of the unimproved, in reality as in appearance, a sufficient distinction to satisfy usury itself,—Of the new mode of comparison which has originated in an Eastern County, viz., *which of the breeds in question will stand starvation longest!* I confess my entire ignorance, I have never made any experiment in that way, nor do I wish to see the "straw a day" test applied. I have heard old soldiers say that when tried with hunger and fatigue, "it was not always gentle blood that yielded first," and to my mind, Mr. Wade's reason as regards hardness is quite conclusive, if the Bear had not the power of assimilating food into fat, he would leave his den in Spring, not much improved in his appearance by *sucking his paws*.

I thank you gentlemen for your courtesy, and before leaving the chair wish to express my hope that all present may have profitted by the discussion, and are determined to persevere, in our endeavors to further improvement in Agriculture despite the jeers of the sceptic or the stubbornness of the ignorant.

A vote of thanks was given to Mr. Wade for his excellent Essay.

WALTER RIDDELL,
Secretary.

IMPROVED BREEDS OF CATTLE.

(To the Editor of the Canadian Agriculturist.)

DEAR SIR:—I have hesitated, for some time past, whether I should trouble myself to reply in any way to Mr. Sotham's several letters, which have appeared in your journal in relation to a letter I wrote some months ago respecting the merits of different breeds of cattle; first, because I saw not, in *what* Mr. Sotham advanced, the *least reason* for my altering my assertion or opinion set forth in that communication, touching the subject matter between us; secondly, because it was too obvious not to discern, at one glance, the animus with which he had taken up his pen. It was equally plain to me that I was writing for one purpose, he for another. *I*, with a desire to be useful; *he*, for the purpose of self-gain, in the hope of bringing himself and his Herefords into notoriety in Canada, and more especially so at our coming Provincial Fair, to be held at Toronto next September—where he hopes, I have no doubt, for better success in impressing the Canadians with the extraordinary qualifications of his Herefords, than he has succeeded in doing with his brother farmers and the breeders of New York State, Kentucky, and Ohio.

I need not appeal to any better authority, Mr. Editor, than yourself, for the motive which induced me to write the letter regarding the excellencies of the different breeds of cattle, as I had found them from long experience, and from what I had heard others say from their practical knowledge also. It was, you will well remember, a request made by yourself, that I should notice Mr. Tye's letter, because, as you said, you did not at that time know any one who had been more extensively engaged in breeding, rearing, and fattening of stock, combined with Dairying that you could well apply to. Knowing, too, as you then did, that I had been a good deal engaged on committees, both at home and abroad, as a Judge of Stock, induced you further to urge the matter on my attention. I then promised that, if you could find no one else equally or better qualified than myself, I would endeavour to take the matter up, and answer Mr. Tye's inquiries in the best manner I could, provided my time should admit of it. And *how* that letter was received by those whom you conversed with on the subject, or by the Farming community at large, *you* are more fully aware than I am, or, at any rate, than I choose to express. But, somehow, that letter seems to have been, to *Mr. Sotham*, a *bitter pill*! The bile, ever since, has been oozing from him at every pore, and I do not even yet know, from the tenor of his letter in your last number, what the extent of the effects of my letter may be. I wish, however, that Mr. Sotham would not take the matter so much to heart. Poor man! I shall, I fear, be

thought by some perfectly cruel, but I really would not wish to be so considered. I can assure Mr. Sotham that my conscience will acquit me of writing *that letter* from a selfish motive. I wish I could think that Mr. Sotham could say the same.

It was my earnest wish to state all I knew respecting the subject I wrote upon, and to leave individuals to judge for themselves, after I had put them in possession of that information.

I wrote of facts—*facts* that I can prove any day; and, if any one is to be benefited by what I wrote, it certainly cannot be myself. I have few or no Short Horns for sale. I am, on the contrary, a purchaser. 'Tis true, I have sold a great many, have bought a great many, and have bred a great many, and I may do so again, or I may not. In one year and a-half, soon after I came to Canada, I sold no fewer than eighteen head of thorough-bred Short Horns, and had certainly a most satisfactory account from every purchaser that I afterwards saw, or corresponded with, of the yearly progressive improvement they made—notwithstanding *they had not* the new milk of two cows, nor yet *that of one*.

Stilton cheese makers cannot afford new milk at that rate to their calves, nor yet had they as much oil cake or grain as they could eat; as they certainly had neither the one nor the other, although Mr. Sotham would wish to mystify the minds of his readers to the extent of the impossibility of *manufacturing* Short Horns *without* the aid of the above *ingredients*. Does Mr. S. for a moment suppose that people are so ignorant as not to know that the Short Horn breed are not a breed of yesterday, or to-day, and that their merits as a herd have been pre-eminent for years, and that they have been patronised and fostered by the best breeders of stock in England, Scotland, Ireland, and America—aye, in truth I may say, all over the globe! Where, then, is the utility of Mr. S. taking such pains to make people believe such trash—such downright untruths, I may safely say—as appears in his communications? Can Mr. S. suppose all people are to be so easily *gulled* as to believe that *he* knows every thing, and *no one else* any thing regarding the subject he writes upon? He may in some instances, I dare say, have succeeded in his gasconading, for which, as the New York State breeders and Farmers well know he has such an extraordinary propensity! But not to the extent, certainly, as he could wish, as the return of cattle at the foot of this article exhibits for some years in his own State will testify to. If there is so much more merit appertaining to the Hereford breed of cattle than to the Short Horns, how comes it that their numbers are so *limited* at the Shows in England compared with the Short Horns, and that there are not other men besides Mr. S. to find it out in his own State, although he has been trumpeting forth their praise these seventeen years past? Surely he will allow that there are other men who have equally discerning capabilities as himself on such a subject; yet the whole tenor of his writing and talking, for many years back, would lead one to think otherwise.

What puerility in a man of Mr. Sotham's pretensions to write about testing the milking properties of different breeds of cows on land 2 or 300 miles apart, when, perhaps, there shall be from 15 to 30 per cent. in the quality of one pasture over the other in producing milk, say nothing of the vast difference that the influence of temperature, rainy weather, or dry weather must have—the age of the cows, the time of calving, the manner of feeding six months before they calve, their condition at calving, and a dozen other things that might be named—all of essential consequence to the carrying out fairly and honestly the trial of which Mr. S. speaks.

Of course we will not take into account the circumstance of Mr. S. being *now* on one of the best, if not the very best tract of land (the Genesee Valley) in New York State! Let me ask Mr. S. if he would have been as anxious for this trial had he *now* been on the land he formerly occupied in the vicinity of Black Rock?—where I understand he has said he could not get his Herefords fat, or that the land there was not fit to feed Herefords on, notwithstanding I have seen as good beef and dairy cows produced in that neighbourhood, of the Durham breed, as I would wish to see.

At the time I suggested the desirableness of the milking properties of the different breeds being fairly tested, if possible, did Mr. Sotham imagine that I for a moment supposed that a fair trial could possibly be arrived at in the manner proposed by him? Why, Sir, a child of ten years old would not have thought of suggesting any thing half so absurd—and that such a proposition could come from one so *thoroughly skilled* in his profession as Mr. S. *premises* to be, is indeed a real puzzler to me. As far as I can see of the matter, it would be perfectly futile. In fact, nothing short of the animals being brought up together from the time they are calved, and each fed and managed exactly in the same way. Even the amount of food weighed to each animal, and then the milk and butter or cheese weighed for *two* years—the number of each breed to be not less than twenty. The result of this plan, could it be carried out, would be something like a fair test—and, in my humble opinion, nothing short of this would be conclusive; but I do not even know that *that* would be, with the losing party. Cows vary so very materially one season with another in their milk, particularly with their first and second calves, that *two* years trial, therefore, would be far more satisfactory; and if others can be found to contribute to this proposition being carried out, I am quite willing to be a party to it.

Mr. S. may *rodomontade* as he pleases of the milking properties of the Herefords, but who ever heard them in England spoken of excelling as a herd for milk? Mr. S. may allude to single cows as having given large quantities of milk or butter, but what does that show or prove? That *all* Hereford cows will do the same? I leave others to judge. It would indeed be strange, as I believe I remarked in my former letter, if some good milkers were not occasionally found in so old an established breed of cattle; but, that they

are celebrated as a herd for milking properties, I most positively deny.

And will Mr. Sotham plead ignorance to the fact, that where there is one Hereford cow to be found in the extensive Islington Dairies, numbering from 3 to 5,000 cows, that there are not less than 50,—aye, I may safely say 100,—Short Horns and grade Short Horns! Let me then ask if there is not something in this for him to reflect on? Besides, as Mr. Sotham's Herefords are such great milkers, how comes it that they never show their milking properties at the several Fairs I have attended in New York State? He has always a number of Beef Cows there, but never any indications of milk about them. Is it, as I heard more than one gentleman suggest, that he was obliged to dry them of their milk that they might be passable at the Fair? Mr. S. speaks of his cows as not having been in good condition at the Fair at Rochester; how came they to be so, I wonder, when they were *not* in milk, and *fresh from the Genesee Valley*? Was not the land even good enough there for them? Three or four of them that handled well were, as I thought, in very fair order; but others that handled almost as hard as the Bulls, which I complained of, were certainly in very inferior condition, and no wonder at it. And Mr. Sotham must permit me to tell him, since he has made so free with my name, and his opinion of my judgment, or rather *not* my judgment, in his last letter, that if he continues to breed from Bulls with such hides as the two I saw at the Rochester Fair (equal almost to those of a rhinoceros or elephant) he will require land of even a *better quality* than the Valley he is now upon, before he can make them what he would wish. Had they been mine, I hesitate not to say that I would have had their throats cut before they had been ten days old. At any rate, *they* should have had no chance of propagating their species. But the most amusing part of the matter is, that on expressing my opinion, after being asked of a Short Horn Breeder regarding the hard handling of the Bulls, he told me in a very quiet way that Mr. Sotham assured him (and of course others also) that *that was characteristic of the Hereford Bull*! Oh, ye gods and little fishes defend us! What next, I wonder? Well, I certainly am prepared for anything from Mr. Sotham's pen or tongue after this!

And now, Mr. Editor, although I have taken up more space with this letter than I intended, and would indeed be glad to drop my pen;—I do not see that I can do so in justice to myself, without alluding in terms most condemnatory of the *coarse* and *unjustifiable* manner in which Mr. S. has thought proper to bring my name before the public, in your April number. His *ad captandum* style of writing I cared not for, nor did his extracts from different letters from time to time (a number of which I could also have made in favour of Short Horns) or his own garbled statements respecting Herefords, trouble me in the least; but when a man can discard all decency of feeling and set at nought every consideration of courtesy and professional usage that is due from one breeder to another, that he may

thereby gain some selfish end, or indulge in some malicious feeling, such conduct is no longer to be borne with impunity. In what way, I should wish to know, can Mr. S. feel himself authorised or justified in this insidious attack upon me, because a Committee, of whom I happened to be one, on Short Horns at the Niagara Fair, thought proper to give the first premium to a cow they deemed deserving, taking all things into consideration, which did not happen to meet with Mr. Sotham's approval. Does Mr. S. in his ignorance, or from a malicious feeling, wish his readers, some of whom may be less informed on the subject than he is, to believe that the fact of the report he alludes to, having my name to it as Chairman of the Committee on Short Horns, renders the decision *mine*? Was ever any thing more preposterous or contemptible! Or, does he mean to say that if I did not quite accord with the other judges in that decision, that it was compulsory on me to state that such was the case! I trow not. If Mr. Sotham has ever acted on Committees as a judge (and one would really be led, against one's will, to believe he had not, from the tenor of his letter), he knows full well that such a step is not actually necessary, unless indeed either party think the discrepancy of judgment too great to rest satisfied without noticing it. But this is rarely or ever done except in extreme cases. I shall, however, be candid to confess that although the cow in question was awarded the first premium, she was not altogether the cow of my choice; and this, I am persuaded, the judges acting with me will well remember. I considered her deficient in two or three essential points, as well as of that style and finish appertaining to all high-bred Short Horns. But where, let me ask, was there a cow, or any other animal on the grounds, that had not deficiencies to prevent them being what we could wish? Nevertheless, Mr. Sotham has given a *very false* statement of some of her points. In the first place, as far as my memory will serve me, she was *not* leggy for a large growing *three year old* Durham Cow,—that she had more bone at that age than I admired, I do not deny; but she was to grow into a fine large animal, and her bone would not afterwards increase in proportion to her size, and allowance had to be made for that. Her brisket was both *prominent, deep, and wide* for her age; and this I will maintain, instead of it being small and short; and that she had a large paunch, or was flat sided, is as erroneous as that black is white. Her quality, I will allow, might be better; and this was the chief point, as well as her approaching to coarseness in her head and neck, that rendered her not a favourite with me. Still, she had that property about her which denoted great thriftiness. Her promise for milk was good—her udder, which would, I have little fear, become more developed with her second or third calf, was beautifully formed. Her crop, with two or three other points that Mr. S. complains of, are questionable as far as I can now remember.

But I shall, before your next number goes to press, write to a friend, a good judge of short horns, in the neighborhood where the cow now is, for a truthful account of what she *really is*. At

any rate whether the cow did, or did not, please Mr Sotham's taste, it has nothing to do with the question that my correspondence had reference to; which was, *what* breed of cattle, *for all purposes*, is most desirable and most profitable for this country? Generally speaking, from what I have seen, and from the experience I have had of fourteen years residence, as well as from *the testimony of others*, I pronounce the Short Horn Breed as such: for they have been for years past, and still are paying the most money, and fetching the highest prices of any other cattle in the country. This I will maintain and evince any day; and I have a violent suspicion that it is *this fact* that lies so hard on Mr. Sotham's mind; and, notwithstanding all that Mr. S. has advanced, I see no reason for altering that opinion. There are, however, some locations where other Breeds may be more suitable; and I suggested the desirableness of parties judging by experience, on this point, for themselves. But because I would not fall down and worship Mr. Sotham and his Herefords, this tirade of his is to be my reward. Oh! *had I but known* my fate sooner, what a *character* would I not have given those *splendid Bulls* of his, at Rochester! *Ne importe*, Mr Editor, I believe I shall survive it.

I now somewhat regret that I delayed replying to Mr. Sotham's letter so long; but until the one in your last number appeared, I felt little disposed to answer letters that had so little soundness in them, or that bore so little on the real subject that my first communication commenced with.—I also felt little inclined to write from a constant state of ill health, and the circumstances of a Trust concern, which I have on hand, creating me a great deal of employment and worry; besides having, of late, cultivated a new branch of business on my farm, that takes me a great deal more from home than is agreeable, and which consumes a vast amount of time, as well as the circumstance of the Farm lately purchased, being so much out of condition as to require much labor and capital to bring it into a productive state; added to which I could not obtain the statistical accounts I wished for, at a time when I had more leisure to write.

I have, however, a return which I shall annex of Durhams and Herefords, as exhibited at the New York State Fair for the last four years, and also a correct statement of premiums awarded to the same Breeds at the Smithfield Show of 1850, which will be anything but gratifying to Mr. Sotham, and a glance at both, will, I think, Mr. Editor, satisfy you as well as your readers, how unnecessarily and unjustifiably Mr. Sotham is blowing his loud trumpet on the superiority of Herefords over Short Horns, at least as far as those returns go. I have not been able to procure the Smithfield list of premiums for 1851, but a friend lent me *The Gardener's Chronicle and Agricultural Gazette* of December, 1851, from which I fully expected to be able to make a correct list of the prize animals,—but was not aware until to-day in looking it over, that in some cases it gives the breed of the prize animals in one class and not in another—and as I had not even referred to it since I borrowed it, till now, I cannot give as I intended the number of prizes each

Breed took at that show. But I am assured, notwithstanding all Mr. Sotham has said, that at both Windsor and Smithfield, the numbers as usual, were in favor of Short Horns. At any rate the figures below will shew *incontestably* the *pre-eminence* of the Short Horns as regards both numbers and prizes, notwithstanding Mr. Sotham's dictum to the contrary. And the *extracts* let Mr. Sotham remember are from *authenticated records*. Such as the New York State Society's Books furnish, and the Smithfield Cattle Show Pamphlet of 1850, published by "Wilson, Piccadilly";—no emanation, certainly, of my brain, nor yet any disingenuous statement, of which Mr. S. has so profusely and shamefully indulged throughout this controversy.

One more allusion Mr. Editor, and I have done, feeling, notwithstanding that Mr. Sotham has occupied your pages so long, that I have transgressed beyond the limits allowed to your several correspondents. You must however, use your own pleasure in curtailing the letter, or give a part of it in your coming number, if in time, and the remainder of it in the following one.

The allusion I had reference to is to a question that Mr. Sotham wishes for information on. He asks "how is it that, if Mr. Parsons found so much profit from Short Horns, that he should have grazed so many Cattle of the Hereford and Devon breed?" This question alone, shows the excessive ignorance of Mr. Sotham in such matters.—Notwithstanding, however, that he has put the question in a taunting kind of way, I will answer it in a candid and truthful manner, and which I have little doubt will prove anything but a pleasurable dose to Mr. S. I doubt not, however, but he will in due time find an "antidote!" He'll understand my meaning. The reason why Mr. P. grazed Hereford, Devon, Scotch, and sometimes Welsh and Irish cattle, was, because he could not possibly—any more than could other graziers around him—procure one fiftieth part of Short Horns they wished. Mr. S. may attend any of the fairs and markets of the Midland Counties, where almost all the large droves of oxen and steers are first exhibited for sale, and where he finds one Short Horn for sale, he shall find one hundred of other Breeds. And now I will tell Mr. S. the reason why it is so. The Short Horn breeders know *too well* the value of their own breed, for fattening quickly, and making heavy weights to send them into a distant, or even a home market, for other men to take advantage of. The Breeders turn them into Beef and profit themselves.—They are not to be bought by the graziers. Their numbers, as Steers or Oxen, are few in comparison to other breeds, they are too much sought after and purchased up *as bulls*; and it is only *those* that have not a fair promise for propagating purposes that are put to feeding,—consequently but few of the first class male animals of this breed, are ever exhibited as oxen at shows. Hence the *cause* of the Herefords in some instances, as steers and Oxen, taking the precedence of the Durhams at the Smithfield show. But how stands the matter, let me ask, as regards the *Hereford Cows*? I need only refer Mr. Sotham and your readers to the table below! But does it not appear very strange, after all the boasting of

Mr S. that *not a single prize* was awarded to the *Hereford Cows* at the Smithfield Show of 1850: but that the Short Horns (that miserable breed of cattle as Mr. S. would have it) should have awarded them the whole *three prizes* in class 2nd for Oxen and Steers, above three, and not exceeding four years old,—and a fourth animal in the same class "highly commended!" numbering 22—and the class, too, taking in "any breed!" and that in class 7, for Cows, the Short Horns again take *all the three premiums* against the Herefords and *all other breeds*—the class numbering 18! Again the Short Horns took two prizes in *three other classes*, against *all other breeds!* and a silver medal, for the best animal of any *age and breed*, as extra stock. Truly, Mr. Editor, a very *despicable breed of cattle these Short Horns must be*: and it would seem there must be some other such spooneys as Mr. Parsons, for awarding prizes to cattle that have no merit to deserve them.

Perhaps, your unprejudiced, impartial, and highly qualified correspondent (Mr. S.) will not think much of time and expense in stepping over the *big pond*, and giving those ignorant, or partial Judges, the aid of his matchless talents, or his invective tirade upon their highly culpable conduct. But even if Mr. S. should be able to shew a more favorable return, in a faithful extract, of his favorite breed at the last spring show, against the Durhams, he may depend upon it the Durham Breeders will make up their lost ground at the next spring show. But I do not even know that he can do this. I shall endeavour, at my leisure, to obtain a return of premiums at both the Smithfield and the Windsor Exhibition last year,—or, if Mr. S. has it, *perhaps* he will give the returns as correctly as they are printed.

I must again apologize for this lengthy epistle; but now that I have commenced the subject I hardly know how to lay down my pen. Should there be any thing further from Mr. S. that requires my attention, I will, if possible, reply to it in the same candid and straightforward manner I have now done,—stating facts as I know them to be, and writing nothing but what is true! Will Mr. Sotham confine himself to this?

I am, dear Sir,

Respectfully yours,
H. PARSONS.

Culdaffe Farm

Guelph, 23rd April, 1852.

PREMIUMS AWARDED AT THE SMITHFIELD
SHOW OF 1850, ON SHORT HORNS AND
HEREFORDS.

Number of Animals Exhibited.		Short Horns, Oxen and Steers	Herefords Oxen and Steers.
18	Class 1st	0	2
22	" 2d	3 and a fourth animal highly commended.	0
20	" 2d	2	1
22	" 4th	1	1
16	" 5th	0 small weights under eighty stones.	0
9	" 6th	0 Scotch, Welsh, and 0 Irish Breeds, only in this class.	

		Cows and Heifers.		Cows and Heifers.
18	" 7th	3	this class highly com-	0
			mended.	
14	" 8th	2		0
24	" 9th	2		0
16	Extra Stock,	1	A silver Medal to	0
			Short Horn Ox, a-	
			gainst all Breeds &	
			all ages, including	
			cows, oxen, and	
			steers.	
Total,		1411	Total,	411

Miserable Breed these Short Horns, truly!

If this sentiment won't speak for itself, Mr. Editor, and set at naught Mr. Sotham's flourishing Trumpet, I know not what will.

The following is from a printed return of Durham and Hereford Cattle as exhibited the last four years in the State of New York, at the Annual Show of the Agricultural Society of that State.

	1848.	1849.	1850.	1851.
Durhams,	79	64	100	114
Herefords,	28	14	15	27

Further comment is, I think, useless. H. P.

(To the Editor of the Canadian Agriculturist.)

DEAR SIR,—In consequence of continued and increasing sickness in my family, it is incompatible my taking any notice of the inconsistent letter of your correspondent on Short Horns and Herefords, in your May number, as intended. In truth, such is my afflictive position at the present moment, that every hour has to be devoted to my suffering family.

Respectfully and truly yours,
H. PARSONS,

Culdoffe Farm,
June 18th, 1852.

THE FARM OF THE POWER CANADA AGRICULTURAL SOCIETY.

(To the Editor of the Canadian Agriculturist.)

SIR,—It is part no of the design of this communication to give an exposition of the system pursued at the farm, rented by the Lower Canada Agricultural Society for the term of five years: that will probably be done through the medium of their journal. The bare fact may be mentioned, that the proprietor being dissatisfied with its management, had notified the Society that he will take it into his own hands on the 1st September of the current year.

The cultivation of wheat was formerly remunerative. It is now intended to be chiefly devoted to meadow and pasture, with so much of grain crops as is necessary to the successful development of such a system of husbandry.

This establishment, better known by the name of La Tortue, situated six miles west of La Prairie and south of the St. Lawrence, consists of 500 acres, and possesses a generally level surface.—It is intersected by La Tortue creek, which is bordered on each side by intervale land; affording excellent shade, and the sweetest pasture.—The soil consists for the most part of a tenacious clay that *bakes* after heavy rains. This quality,

as most farmers know, is not a very desirable one; but is here overcome, in some measure, by the use of a compost of lime and muck. Limestone of the Trenton formation crops out near the bed of the stream, and may be easily obtained. The proprietor, taking advantage of this, has constructed a kiln where he can burn all that is required for agricultural operations.

I have not seen, in any part of America that I have visited, buildings for stock so commodious and extensive as those of La Tortue. They are on a scale commensurate with a very successful system,—one into which order and economy with a view to profit should largely enter. The winter stable can accommodate sixty cows in one apartment, arranged across the building in double rows with heads and passages between for feeding and milking. They can drink at pleasure from water supplied by a chain pump from a capacious cistern. This arrangement is necessary, resulting from the confinement of the cattle for the greater part of winter.

The urine has free passage from each range to a large tank, from which it can be taken for any required purpose. A somewhat novel method has been tried for its distribution. Pipes lead from the cistern in the yard to a reservoir in the field,—which is on wheels, and can be drawn from place to place by horses. An engine, similar in construction to that used in cities by the fire department, is then put in operation for scattering it. The reason of this complicated machinery, finds an explanation in the system of cultivation it was intended to promote. Soiling of cattle was contemplated; to the success of which, the use of the application of liquid manure is well known.

A summer milking stable has been erected which holds sixty-four cows. To those desirous of building after improved plans, a visit may be safely recommended; which, I have no doubt, will be amply repaid. All hay before going into the barns passes through a weigh-house, where the weight of each load is carefully noted, and that of the aggregate found, thereby affording material for an estimate, if not true, at least approximate, of the number of cattle to be wintered.

The stock on the farm is grade. Ayrshire and Native blood chiefly prevails. It has been said that a cross between the Durham and Native breeds is good at the pail. I do not know that many comparisons of the yields of both are before the public which safely decide in favor of either. We, however, find the Durham grade in more frequent numbers.

A great variety of improved implements has not yet been introduced. The Scotch Plough is preferred; although I noticed one of Prouty & Mears of Boston, and one lately imported from France. Neither of these has been carefully tested, nor is a decision likely to be given in their favor. The use of the grain drill has been rejected. Time indeed will be required before its general introduction into the country, as many of our men can produce in most soils the same effect with the plough;—a statement anything but disparaging to them as a class.

I regret that the present position of the farm, and the parties who superintend it, prevents the publication at present of data, whereby a truthful representation of its management and profits might be derived. If, in any farming establishment, the expenditure exceeds the returns; dependence of others on the system pursued is fallacious; and if its recommendations for practice are inapplicable with the great body of farmers, it can never be viewed as a model.

I am,

Respectfully yours,

A. KIRKWOOD.

Quebec, 21st June, 1852.

EFFECTS OF CHARCOAL—REMARKS ON CATTLE, &c.

Piffardinia, Livingston Co.,

New York, June 21, 1852.

DEAR SIR,—My time is now so much occupied that I cannot find enough to answer Mr. Croft as I would wish, but I will state what has come under my observation for his consideration and study for the present.

Some time since, I found charcoal left from an old pit about twelve inches in thickness. The blacksmith who made the coal told me that it had laid there thirteen years, and he left it about in the same state as when I found it. It was exposed to alternate rain and sunshine, snow and frost, for that length of time, without any sign of decay.

I made a compact heap of slaughter house manure, night soil, barnyard and street manure. I drew this charcoal, and spread it over the top, probably from an inch, to an inch and a half thick, and when put on it was in as dry a state as when first made, although thirteen years old. In less than a month it began gradually to decay, and all of it was changed in appearance to something like black salve, when worked with a shovel. This was one point, with some others, that convinced me that charcoal was an absorbent of the stench that evaporates; for there was none of it floating in the atmosphere as previously and which I think was the cause of its decay. Had it been put on the manure heap the first day it was made it would have had the same effect. I turned over this Composition, and mixed the various kinds of manure together, and when drawn out on the land the charcoal was scarcely perceptible; it would spit out with a spade or shovel and had scarcely any smell to it.

I put this mine on a piece of impoverished clay soil—grass land, in the following manner, as top dressing: first from eight to ten loads per acre. Secondly, from sixteen to eighteen. Thirdly from twenty-eight to thirty. The first was exhausted after two years mowing, and became as much impoverished as formerly. The second proved the benefit for years, and returned to its impoverished condition. The third was not exhausted in seven years. This convinced me in my own mind that there was no loss from evaporation, and that the stench that escaped from the manure into the charcoal, decayed that also, or why was

it not decayed by the rains, sun, and atmosphere, in its previous situation; it might have laid there thirteen years longer; had it not come in contact with this stench (I will not call it ammonia, as there seems to be some *mystery* about the term.) By this *proof* satisfactory to me, I thought the sooner I put my manure on, or into the soil, the better, if in a situation where the rains could not wash it away. I highly approve of manure being put on the soil from the stables in its green state, and when long, if ploughed in it will very soon decay, and the nearer you get it to the surface the better.

Yours sincerely,

WM. HY. SOTHAM.

P. S.—I do not consider Professor Low any authority on cattle, nor any other Professor, who professes to write a book, for the sake of the money he can gain by it; that is the object, not the truth about the cattle; for such writers will praise that breed the most, whose breeders pay the most for it. If the large sums of money that have been given to authors, by short horn breeders, was to be brought before the public, for puffing that particular breed, it would astonish those who know nothing about it. I can do it if you think it worth noticing in your paper. Professor Low would not escape this censure, and I will give you one sentence from "Youatt" the celebrated text-book, which is sufficiently to show he knew nothing of the qualities of cattle. In page 11 he says speaking of Devons." They have been long celebrated as a breed of cattle, beautiful in the highest degree, and in activity at work, and aptness to fatten, unrivalled." In speaking of Herefords, page 32. "They are even more kindly feeders than the Devons, and will live and grow fat when a Devon will cease to live." And further in the same page. "The Devon will acquire bulk and hardihood, and the Herefords a finer form and activity." We know that Youatt "wrote a book," but do these conflicting statements make any sense of it. I can show you statements of Professor Low much in the same style, which it may suit my purpose to do at some future day.

I think breeders ought to give their own statements, and if they do not tell the truth, they will soon with meet opposition; and then the public will be able to judge which differs from it. The columns of agricultural papers should always be open to these discussions with a fair and liberal view to both parties, and without fear or favour. Yours is the best paper I have ever dealt with for this purpose. The Editors on this side the lake are partial, or are afraid of giving offence to part of their correspondents. Others get up a paper purposely to puff the commodity they sell, and make that the first object.

Let us hear what more Mr. Parsons has to say on Short Horns, and when the discussion is ended let the public judge between us.

HEREFORDS *versus* SHORT HORNS.

By Mr. Sotham's request we insert the following letter from the pen of the late Rev. J. R. Smythies

and published in the *Mark Lane Express*, a short time previous to his decease. We would have liked the communication much better had it been written in a less boastful spirit; and we by no means agree with the respected writer, that from any facts or reasonings he has adduced, the much disputed question "has now been set at rest forever." Our readers will take nothing for granted, but examine *both sides* candidly for themselves:—

To the Editor of the Mark Lane Express.

DEAR SIR,—One nut more for Mr. Kearey to crack, and I have done with him. Soon after Mr. Kearey's prize essay appeared in the *Journal of the Royal Agricultural Society*, I addressed a letter to you objecting in the strongest terms to an assertion contained in it, "that it took ten months longer to make up a Hereford than it did a Shorn-Horn." Since that essay and my letter were published we have had two Smithfield shows. Now, what have they done to prove the truth or falsehood of this dogmatical assertion? In the show of 1850 the gold medal was awarded to a Hereford steer, two years and ten months old, though there were at least forty short-horns in the show yard with him, at least thirty-five that were from one to two or three years older than he was! This year the Herefords take seven prizes; while the Short-horns get only one, and that a second prize.

This question is now set at rest for ever; and after all the bragging, boasting, and false assumption of superiority, the Short-horns must be contented in future to put up with the second place as a breeding stock. And how has this been accomplished? Has this result been brought about by a large expenditure of money to breed a few superior Herefords for the occasion? Just the contrary. On the side of the short-horns you have all the rank, the wealth, the influence and intelligence of the great nobles of the land—The Duke of Rutland, the Marquis of Exeter, the Marquis of Northampton, Earls Spencer, Ducie, Carlisle, Hardwicke, Fitzwilliam, and Burlington, Lords Feversham, Berners, &c.; Sir Charles Knightly, Sir Charles Morgan, Sir C. Isham, with a long list too numerous to set down. Whom have we on our side to oppose this host of influence, wealth, intelligence, and perseverance but about a dozen little tenant-farmers in the county of Hereford and on the borders of Shropshire about Ludlow? How wonderful is truth; nothing can repress it! There has been an expenditure of many thousands of pounds to try to establish the superiority of the Short-horns; but in spite of every adverse circumstance the truth will out—the Hereford is the best breed to supply London with beef.

This question is set at rest forever; but our triumph would not have been complete if the Short-horned men had not gone to the members of the Smithfield club, and requested them to hide their disgrace in future by letting them take their prizes in their own class, that they may no more come in contact with those horrid Herefords. I hope and trust those true, honest-hearted, sensible sons of John Bull will not consent to any such thing. The club was established to discover by competition which was the best breed. It has answered the purpose for which it was established; and I hope they will not alter it. It is the only course upon which we can have a fair, up-standing fight; and I hope we shall not be deprived of that. If the cost of one of those herds of Short-horns from the beginning could be laid before the public, it would make Mr. Meehi's balance-sheet appear like a fixed star at noon on a summer's day.

I cannot write any more on this subject at present, as I am now so ill I can hardly hold my pen. If you will give this a place in your next week's paper you will very much oblige.

East Hill, Colchester.

Yours truly,
J. R. SMITHIES.

IMPROVEMENT IN BUTTER MAKING.

The following directions and suggestions relative to this important department of rural economy have been sent us by the enterprising Senior Vice President of our Provincial Agricultural Association, who will, we trust, forgive us for publishing his accompanying letter, as a sense of duty impels us not to withhold its contents from our readers. The more this subject is examined, the more clearly does it appear that large portions of this Province may be profitably devoted to the Dairy and raising of Cattle, to an extent which at present is but little understood. When our American cousins have properly learnt wherein their true interest lies, and respond to our fair and reasonable offer, now so long and urgently made for an unfettered system of reciprocal trade, the intercommunication of the two countries will proceed in the ratio, measured by the rapid growth and increasing wants of these British Provinces, and the already gigantic neighboring republic. Let us hope in this age of steamboats and railways, the people occupying both sides of the line of 45°, who speak the same language, and trace, in great measure, a common descent, will ere long recognise a fair, reasonable and *common principle* of exchanging their productions to the great and permanent advantage of both.

Brockville, May 29th, 1852.

MY DEAR SIR,—

With this I send you a handbill of which our firm have issued and circulated about 25,000, containing some suggestions on the very important subject, to Leeds & Grenville, of improving the quality of our butter. Much of the information I have culled from various publications—the rest has been suggested to me in the course of our trade in that article. They, although common place, I trust will be the means of doing some good. If you think the contents of the bill worthy of a place in your journal, and will serve the cause of agriculture, in the smallest degree you are at liberty to publish it.

By the last Agricultural Census for Leeds and Grenville, I observe that the quantity of butter made in these Counties for 1851, was 1251,230 lbs. taking out for consumption, if you please, say, 451,230 lbs., would leave for export, say, 800,000 lbs., which at 7½ per lb., is £25,000—no small item in the exports of our Counties. Our continuity to Boston and New York by Railway, by which such produce as butter may reach either of these two great consuming places within two days time, will undoubtedly hereafter, as it has indeed already done, enhance the value of not only butter, but coarse grains and many other agricultural products, which have hitherto found but a very indifferent market near home.

The article of cheese is now being made in Leeds & Grenville to some extent;—a number of large farms have been let out as dairy farms.—From one of these our firm was interested in the purchase last fall of about eight tons, which was sent to Scotland for sale. With respect to the quality of this shipment we were advised that the firm to whom we consigned had, at that date, recently effected sales of 1800 boxes of cheese from the United States, which they stated was inferior in quality to our shipment, and further that ours would compare most favorably with any cheese consigned to them from the United States. This being the case, it offers good encouragement to the farmers to enter more vigorously into competition with the daring-men of the United States in the European market.

The past winter our Counties have been visited by buyers from the United States of Horned Cattle, Horses, Sheep, and even pigs have been bought and driven across the lines in large numbers. The question arises whether such sales have been profitable to our farmers,—if they have, then breeding and raising stock for a foreign market should hereafter have the farmers increased and best attention.

In view of the present low price of wheat and flour in the markets that we have heretofore exported our surplus to, I think it incumbent upon our farmers to turn their attention less upon wheat, and divide their industry upon other products,—say, Pork, Cattle, Horses, Wool, Butter, Cheese, &c.

I hope we shall have a good fair in September at your city. * * * * *

With best regards,

I am,

Dear Sir,

Yours truly,

WM. MATTHIE.

NECESSARY IMPROVEMENTS TO BUTTER MAKERS.

—

SALT.

Use fine salt ground from Turk's Island Rock Salt, having first been thoroughly washed and sifted. This salt has recently been prepared at Boston, and introduced into our country, and may be had from most of the merchants. *Avoid using the Onondaga Dairy Salt.* If the Turk's Island cannot be conveniently had, then use clear, white stoved Liverpool, after pulverising. This can be done by rolling it with a bottle, or any other round smooth hard substance. *Much good butter is spoiled by using bad salt!*

MILK DISHES.

Use shallow, well glazed earthen pans, carefully scalded and exposed to the air, out of doors, if possible, for a few hours, before each time of using.

KEEPING MILK.

Keep your milk, in a cool, quiet place, free from foul damp, where there is a good circulation of fresh air; the dishes resting on stone, or when stone is not to be had conveniently, upon narrow strips of board placed about one inch apart, which will admit of cool air circulating immediately underneath the pans, away from the wall, and raised not less than three

feet from the ground; no meat or vegetables should it possible, be kept in the milk room.

CHURNING.

The best temperature for cream when about to be churned, is said to be sixty-two degrees, which is a little cooler than the medium heat between new drawn milk and cold well water. When the butter is churned and gathered, draw off the milk, then put in a few quarts of cold spring or iced water, and wash out all the milk, while the butter is still in the churn, and by the same process as you churned the cream. When sufficiently washed, which should only be enough to free the butter from the milk, that being all that is required—too much working is not good, the former makes it waxy, and the latter bleaches it—keep your butter as rich a yellow in the color as possible. To every pound of butter add threefourths of an ounce to an ounce of the salt named above, and work it in by the same process as churning or by a wooden ladle—never by the hand, as the heat of the hand is injurious to the butter.

TUBS OR KEGS.

The tub is the best for the American market; the keg the only package suitable to ship to Europe. They should be made to hold about 80 or 90 lbs., and of the best sound, seasoned white oak, or white ash timber, clear of sap and knots—avoiding bass wood heads in all cases—made in the best possible manner, and having due regard to their being neatly and strongly hooped, uniform in size, and perfectly tight—half round hickory for kegs, and split ash hoops for tubs.

PACKING.

Before using the package, let it be soaked two or three days in strong brine, then correctly weighed, and weight in figures marked on the head. When ready to commence packing, sprinkle of *this salt* in the bottom of the keg, about one fourth of an inch deep, and over it spread a piece of thin well washed brown cotton, cut one and a half inches larger than the bottom of the keg or tub, and then pack your butter SOLID. If you have not sufficient butter so fill your package at once, be careful to spread on a similar piece of cotton to that on the bottom over the butter, with about half an inch of damp salt on the cotton, so as to exclude the air until you have another packing—*bear in mind*, that lengthened exposure to the atmosphere is injurious to butter. When your package is full, after making the surface smooth and level, put your cotton cloth, first washing it carefully over the top, "*tuck*" it down well around the tub or keg, drive back the hoops, and cover it with about one-fourth of an inch of this salt. Wet the salt enough to form paste; let it dry, put the head or cover on tightly, and put the package away in a cool, airy place. Your butter will then keep for months.

SELLING AND REMOVING IT FOR SALE.

Do not sell your butter in pailfuls if you can possibly avoid it, rather sacrifice a little and pack your butter in a keg or tub yourself; you can do it better than any storeman, and if it pays him to pack it, it will pay you; but if necessity compels you to sell, then carry your butter in a well scalded wooden tub or pail free from paint, and covered with a thick, clean, wet cloth; surround the package with grass, and be careful not to allow it to stand an hour or two in the waggon exposed to the rays of the sun, after you have arrived at the place of sale, before removing it to the buyer's cellars.

Avoid removing your keg butter in hot weather to the place of sale. Either select a cool day, or remove it in the evening or early morning, taking care to have a little hay under the keg, and plenty of grass or wet hay over the package as it lies in the waggon.

MERCHANTS.

If you buy butter in pailfuls, sort carefully the colors so as to pack that of like shade in the same keg—layers of white and yellow are sure to ruin the value of your butter. Avoid keeping it too long before packing, and never, except in extreme cases, attempt working it for the purpose of extracting milk after it reaches your cellar—this should be done before it leaves the milk-house—you are more likely to injure the nature of butter by making it tough and waxy than improve it. Pack all you get in during each day before the following morning—as before remarked lengthened exposure is most injurious to butter. While collecting the pailful, keep the butter in a large covered tub, full of weak cold stoved salt brine, use ice if at hand, taking care to scald your tub well, at least once each week.

Encourage small Farmers, by furnishing them with proper packages, to pack their own butter and bring and sell it to you when full. And to throw some responsibility upon and directly identify them with the character of the country in the quality of this article, as well as to bring home to their pockets the advantage of making good butter, put their initials upon their own kegs or tubs, and when sold take a little pains to inform the maker of the result of the inspection, and occasionally when good make them a little extra allowance—it will be a gift at interest—when *poor* explain and point out the great advantage to be derived by *making it good*, it will stimulate to improvement.

FARMERS.

Bear in mind as the season for making butter is just beginning, that good butter, which is sold for 7½d per pound, is made from the same quality of milk as poor butter, which is often a drug at 5d per pound, and *all that is required* to make the bad equal to the good is, no additional expense, *but only a little more care and attention to small details while making*. The character of our Country, Canada, and especially of Leeds and Grenville, as butter producing Counties, is something well worth sustaining in the present age of progress and improvement; and the saving to you, individually, in money, if you each only make two kegs or tubs, of 80 lbs. each, is over \$6½, and on the aggregate quantity made in the United Counties of Leeds and Grenville, which is supposed to be about 10,000 kegs or tubs, makes the enormous difference of about \$33,000 in the year, a sum well worth saving in these hard times.

A valuable portion of the suggestions embraced in the foregoing is taken from an American handbill, headed "Butter Makers."

The present handbill contains some suggestions made by friends and otherwise collected since the first fifteen hundred were issued and circulated, and which the writer trusts will be found important, as bearing upon the subject of securing an improvement in the quality of the butter made in Leeds and Grenville in 1852.

Brockville, May 1852.

JETHRO TULL.

On the 3rd of June, 1740, died Jethro Tull, the inventor and unwearied advocate of drill sowing and frequent hoeing—the greatest improvements which have been introduced into the modern practice of tillage. The saving of seed effected by this practice is no small consideration; for, let it be remembered, that millions of acres are annually sown to grow food for man and his assistant animals, and that by drilling, more than one-third of the requisite seed is saved. But this is of trivial importance when compared with the facility that drilling affords for the

destruction of weeds, and loosening the soil by the hoe. Every weed, living as it does, upon the same food as the cultivated plants among which it grows, is really a robber, depriving them of a certain portion of their nourishment, and rendering them less vigorous by depriving them of light and air proportionate to its own size. On the importance of loosening the soil we need not farther insist, for we have repeatedly explained that importance, and our coadjutors almost weekly advocate the benefits derivable from the practice. Before Tull's time, thick-sowing broadcast and the scanty employment of the hoe, were the established mode; and when Tull adopted and published a work recommending a practice totally the reverse, though many came to see his "new system of husbandry," yet they, for the most part came to decide it, and his very labourers thwarted him in "his new fangled ways." Yet he wrestled firmly and undauntedly against all difficulties; and so nobly does he stand forth in every period of his life, that we must glance over its prominent passages, and hold them up to the cultivators of the soil, to cheer them as well as warn. Tull was educated for the legal profession, but acute disease drove him from a sedentary life, but not into idleness. During his travels in search of health he directed his attention to the agriculture of the countries through which he passed, and finding that they never manured their vineyards, he rashly concluded that all plants might be similarly cultivated. On returning to England he occupied his own farm of Prosperous, at Shalborne, in Berkshire, and commenced that warfare, to win success against adverse circumstances, from which he only ceased on his death-bed. If any cultivator despairs over a thin and hungry soil, let him take courage, for Tull won crops from a soil of the same character; nor let him be subdued though sickness enervate him, for Tull was afflicted with agonizing diseases, yet was never cast down. The tradition of his neighbourhood is, that when confined to his couch by incurable maladies, he carried on his experiments in boxes placed before his windows—sowing his seeds and trying his surface-stirring processes with all the enthusiasm of an inventor. If stupid, prejudiced, and perverse servants encumber and thwart the cultivator, this too, was Tull's fate; and like him let the cultivator meet such obstinacy and ignorance with a firmness that will defy all such opposition. He is still spoken of by the old labourers of the district as being a man whom it was impossible to oppose with success, and the secret of his triumphs over peasant prejudices is told in this, his own apothegm, "There is more than a rent odds in saying to the husbandry servants, *Go and do this*, or *Come, let us do it*." Like many other inventors he arrived at some conclusions not justified by his experiments; and among these errors was the opinion that hoeing and pulverizing the soil might supersede the use of manure altogether; but he lived to see his mistake, and, which is still more worthy to acknowledge it. Our space warns us to conclude, and we will do so in the words of Mr. Cuthbert Johnston, who well appreciates his merits! "Tull lies buried without even a stone to indicate where such a benefactor of agriculture reposes. His grave is even undetermined; and if he died at Shalborne, there is no trace of burial in its parish register. The tradition of the neighbourhood is, that he died and was buried in Italy. His deeds, his triumphs, were of the peaceful kind with which the world in general is little enamoured; but their results were momentous to his native land. His drill has saved in seed alone, the food of millions; and his horse-hoe system, by which he attempted to cultivate without manure, taught the farmer that deep ploughing and pulverization of the soil, render a much smaller application of fertilizers necessary."—*Cottage Gardener*.

W.



SHORT HORN BULL, "HALTON," THE PROPERTY OF S. P. CHAPMAN, ESQ., CLOCKVILLE, N. Y.

"HALTON."

We are enabled this month to present our readers with a portrait of this distinguished Short Horn Bull, whose many superior excellencies are well known and appreciated, both in Canada and the United States. HALTON was bred by *George Vail, Esq. of Troy, N. Y.* (who has been a most successful breeder, as well as importer of Short Horns, for a number of years,) and was purchased when only three months old for \$300, by the late John Wetenhall, Esq. and his near neighbour, the Honourable Adam Fergusson, for the improvement of their respective herds. Halton became the sole property of Mr. Fergusson upon the lamented death of Mr. Wetenhall. The improvement effected by Halton on Mr. Fergusson's herd was of the most striking and satisfactory nature, as numbers of his progeny fully testify; and it was with much regret that Mr. Fergusson found it necessary to part with him, from a dread of breeding too much "*in and in.*" He was purchased by an eminent American Short Horn breeder, *S. P. Chapman, Esq. Clockville, Madison County, N. Y.*; who, we are informed, is highly delighted with him, as well he may; and considers him a Bull as near perfection in form and handling, as any animal can possibly attain.

Halton is of a rich dark roan, and was dropped in August 1848. Got by Meteror; Dam, Lady Barrington, both of whose pedigrees are duly recorded in the *American Herd Book*. The *Dutchess* family of Short Horns, which is considered by many of the best judges superior to any other of that world renowned breed, has thus been successfully introduced both into Canada and the United States, as the splendid herds of Messrs Fergusson and Vail, to say nothing of others, amply show. The late celebrated English breeder, Mr. BATES, of Kirkleavington, Yorkshire, originated, or at least, greatly improved the Dutchess' blood, and we purpose giving in our next some account of his proceedings, both as a breeder and a farmer, with a general notice of the history and progress of Short Horn Cattle.

There are but few who know how to be idle and innocent; by doing nothing we learn to do ill.

HORTICULTURE.

THE SCIENCE AND PRINCIPLES OF GARDENING.

No. VII.

PROPAGATING BY SEEDS.

The most common way of procuring a great number of plants of one kind, is by sowing seed; indeed, this is the means which nature herself has provided, and, of course, it is the most simple and efficacious.

Every seed has a shell more or less hard, to protect it from external injury, and its base is furnished with what is called the seed-pore, (popularly the *eye*,) which performs two important functions, viz., conveys the nutrient pulp to the seed while in a young and green state, and previous to its becoming ripe, and also is the point from which the roots and stem of the young plant proceed after sowing.

Within the shell is the kernel, consisting of the embryo plant, with its radicle or root, its gemlet or stem, and the neck between these, which afterwards becomes the crown, besides the seed lobe or lobes containing materials for nourishing it in the first stage of growth.

In order to excite the embryo into action, and induce it to grow, four things are indispensable—heat, water, air, and darkness.

The heat is required to soften the nutrient materials in the lobes; but without water it would be more likely to harden these. Pure water is more appropriate than water containing humin or other rich materials, that which is contained in the lobes being sufficiently rich.

Freely circulating air is indispensable for supplying oxygen gas, and carrying off carbonic acid gas, a process the reverse of what takes place in leaves exposed to sun-light. For the same reason light is injurious, by carrying off the oxygen gas requisite in this stage of growth.

In sowing any sort of seed, these four circumstances must be carefully attended to. On account of the absence of heat, accordingly, seeds will not vegetate during frost; without a sufficient supply of water, they will not come up when sown in dry sand; for want of air they will not come up if too deep in the ground; and if not duly covered, they will not come up from having too much light.

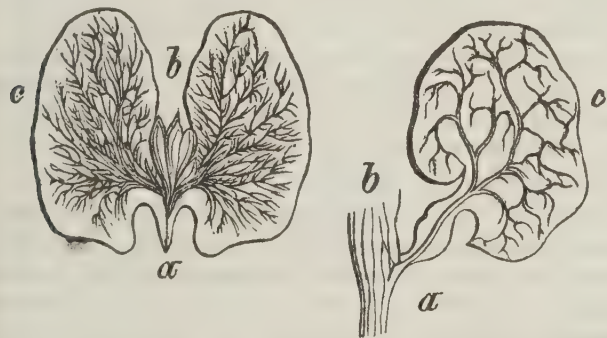
Seeds, however, often germinate in the light, such as corn in wet seasons, before it is cut; but they do not, in these cases, produce strong plants, as the root requires to shoot away from the light, as much as the stem into the light. Birch seed succeeds best when not covered. These are exceptions, not rules.

Most seeds are benefitted by steeping them for an hour or two, previous to sowing, in pure water, which, in the cold weather of spring, may be made milk-warm. Pickles, train oil, urine, and other steepings, must in most cases, be injurious; and will never, as is ignorantly pretended, destroy the eggs of insects, even if such be among

the seed, of which we know not a single instance, not even the eggs of the turnip fly, as lately asserted.

Too much water, however, will be certain to injure the seeds, by gorging them, and rendering them dropsical and liable to rot. But, on the other hand, many seeds will vegetate in water alone, provided the vessel in which they are placed be open at the top for the admission of air; so that a good supply of water is absolutely essential for furthering this process. It is important, however, to avoid both extreme drought and moisture, in the propagation of plants by seed, either of which is more or less injurious. Hence the propriety of sowing seeds when the weather is only moderately wet, and the ground not saturated with moisture, in order that the seeds may obtain a due supply, but not a redundancy of water.

The seed lobes, after having parted with some of their nutrient matter, for the production of the roots, protude themselves from the soil, expand and are changed into seed leaves. They then perform functions of a totally different nature, and proceed to prepare pulp from the sap now taken up by the young root, for the support and development of the stem and leaves. When these latter have become sufficiently expanded to be capable of providing pulp for themselves, and the other parts of the plant, the seed leaves, having fulfilled the office assigned to them by nature, soon wither and decay.



Seed lobes in the bean, with the nutrient vessels branching through them magnified. *a, a*, root; *b, b*, gemlet; *c, c*, seed lobes.

The seed leaves are, therefore, of such vital importance to plants, at an early stage of their existence, that if they are destroyed at this period of their growth, either by insects, such as the turnip fly, snails, slugs, or grubs, or by birds, frost, or other casualties, they seldom recover, and the whole crop generally perishes. This is not unfrequently the case with young turnips, radishes, and cabbages; and the only alternative, where it is permitted to occur, is to dig the ground slightly over, and sow it afresh. The greatest care, however, should be exercised to prevent such an accident, as it will frequently throw the crop too late to be of any real use.

Propagation by seeds, then being the most natural and easy means of multiplying plants, should ordinarily be preferred. But some plants, as the foreign geraniums, and most double flowers, do not ripen seed; in others, as the rose, the seeds are generally two years in the ground before they

vegetate, and do not produce flowers for several years after; and in other cases, each seed will produce a plant essentially different from the parent species. This latter circumstance has been taken advantage of by gardeners and florists, and hence are produced the almost innumerable beautiful varieties of the dahlia, chrysanthemum, heart's-ease, tulip, ranunculus, and many others too numerous to mention. In culinary vegetables, also, most of our best sorts of cabbage, lettuce, and other similar kinds, have been produced from seed. These are only to be obtained, however, by what is termed "cross-fertilization," or hybridising, which is simply transferring the pollen, or small yellow or red dust, from the anthers of a flower of one sort, to the summit of the pistil or female part of the flower of another sort, and thus producing seed, the plants which will partake of the nature of both the parent species.

A continuation of such circumstances as those before mentioned, has led to the application of art in the propagation of plants, and several methods have successively been devised, for multiplying particular kinds, in a different manner than by sowing seed. Indeed, to such an extent have the various systems been carried, that propagation by seed has been almost entirely superseded, except with such kinds as are annual or biennial duration, or are of herbaceous habits. In the following arrangement, it will be seen that the different methods have been treated of in the order in which they were naturally suggested.

ROSE INSECTS.—If our lady readers are desirous of keeping their rose bushes free from the small green vermin that so frequently infect them, the following remedy will be found a most effectual one:—To 3 gallons of water add one peck of soot and one quart of unslacked lime. Stir it well—let it stand for 24 hours, and when the soot rises to the surface skim it off. Use a syringe for applying it.—*N. E. Farmer.*

DIRECTIONS FOR BOILING RICE.—Take one pint of good clean sound rice, wash it well in several waters, rub it well between the hands, and pour off the water at each washing as soon as possible, to take off all the small particles that would be likely to color the rice.—This done, take one quart of water to one pint of rice, put in one-half teaspoonful of fine salt, put it over the fire, let it boil fifteen minutes without stirring, and then take it off. If the rice has not taken up all the water, pour it off; if it is good rice it will take it all up. When this is done, give the rice one good stirring, and the only one, place the kettle on some hot embers where it will simmer for fifteen minutes longer, this is done your rice will come on the table, each grain separate, as white as snow and well cooked.—*New England Farmer.*

CURD CHEESE-CAKE.—One quart of milk, half a pound of sugar, a quarter of a pound of butter, five eggs, one teaspoonful of grated nutmeg, a quarter of a pound of currants

Warm the milk, and turn it to a curd, with a piece of rennet, or a tablespoonful of the wine in which a rennet has been soaked. As soon as the milk is a thick curd, take it out with a broad ladle or spoon, and lay it on a sieve to drain. Beat the eggs, and add the drained curd, also the sugar and butter, which must have been beaten to a cream, then the spice and fruit. For those who would prefer it sweeter, more sugar may be added. Line your pie plates with paste, fill them with the above mixture, and bake in a moderately hot oven.

The Forest Trees.

BY ELIZA COOK.

Up with your heads ye sylvan lords,
Wave proudly in the breeze,
For our cradle bands and coffin boards
Must come from the forest trees.

We bless ye for your summer shade,
When our weak limbs fail and tire;
Our thanks are due for your winter aid,
When we pile the bright log fire.

Oh! where would be our rule on the sea,
And the fame of the sailor band,
Were it not for the oak and cloud-crowned pine,
That spring on the quiet land?

When the ribs and masts of the good ship live,
And weather the gale with ease,
Take his glass from the tar who will not give
A health to the forest trees.

Ye lend to life its earliest joy,
And wait on its latest page;
In the circling hoop for the rosy boy,
And the easy chair for age.

The old man totters on his way
With footsteps short and slow;
But without the stick for his help and stay
Not a yard's length could he go.

The hazel-twigg in the stripling's hand,
Hath magic power to please;
And the trusty staff and slender wand
Are plucked from the forest trees.

Ye are seen in the shape of the blessed plough,
And the merry ringing flail;
Ye shine in the dome of the monarch's home
And the sacred altar-rail.

In the rustic porch, the wainscotted wall—
In the gay triumphal car—
In the rude-built hut or the banquet hall,
No matter! there ye are!

Then up with your heads, ye sylvan lords,
Wave proudly in the breeze;
From our cradle bands to our coffin boards
We're in debt to the forest trees.

BRITISH POLYTECHNIC FIRE.

On Saturday evening there was a private view at the Polytechnic Institution of the "new fire," recently patented by Dr. Bachhoffner and Mr. Defries. The process consists in substituting for coals in the ordinary grate, thin laminæ of indestructible metal, which being acted upon by gas, instantly become red hot, and expose a large amount of radiating surface, securing a cheerful bright open fire. It is proposed to employ a non-carbonised gas, obtained from the decomposition of water, which has no unpleasant smell or injurious effect incident to the use of any other gas. There is a complete absence of smoke, dust, ashes, soot, sparks, and other annoyances which attend upon the present system of coal fires. It can be lighted at a moment's notice, and the material being indestructible, the only

expense is that of the gas, which can be supplied at the cost of 1s. 6d. per 1000 feet. The advantages are manifold. The gas is not open to the usual objections entertained against its adoption in private residences. It is perfectly clean, gives a great heat capable of being regulated to the greatest nicety, and consequently well adapted for culinary purposes. For this reason also it will prove a great boon to invalids. From experiments which have been made, the saving is about 30 per cent. over that of a coal fire, the cost for a single one in a large room being about 3d. per day. In a sanitary point the benefit conferred will be immense; for the heat produced from the combustion of gas far exceeds that of any other material, and the atmosphere will at once be relieved from the injurious effects of smoke, either from dwelling-houses, furnaces, or factories. There is, therefore, no longer any reason why the atmosphere of the metropolis and other densely crowded cities should not be rendered as clear and uncontaminated as that of the purest country district. It is the intention of the patentees to form a company to carry out this invention, and to apply for an Act of Parliament.

NO MATTER DESTROYED IN COMBUSTION.

When a body is subjected to the action of heat, its elements are decomposed, and its constituent particles separated, many of them combine with other particles of matter, and form new substances possessing other qualities. Thus, when coal or other fuel is burned, the carbon enters into combination with one of the constituents of the atmosphere called oxygen, and forms a gaseous substance called carbonic acid, which rises into and mixes with the atmosphere. Another element, hydrogen, combines with the same constituent of the atmosphere and forms vapour, which also disperses in the atmosphere. Sulphur, which is also occasionally present in fuel, combines with the same constituent of the air, forming a gas called sulphureous acid, which also escapes into the atmosphere. Thus the entire matter of the fuel, with the exception of a small portion of incombustible matter, which falls into the ash-pit, is dispersed in the air, and no destruction or annihilation takes place. That no portion of the matter of the fuel is destroyed or annihilated can be established by the incontrovertible experimental proofs of the chemist, for by the expedients of his science all the products of the combustion which have been just mentioned can be preserved, weighed, and decomposed. The oxygen which has entered into combination with each element of the fuel can be reproduced, as well as the constituents of the fuel itself, the latter of which being weighed, as well as in the incombustible ash, the weight of the whole is found to be precisely equal to the weight of the fuel which was burned and apparently destroyed.

JOHN ABERNETHY, the eminent surgeon, used to tell his scholars that all human maladies arose from two causes—stuffing and fretting.

MINUTENESS OF ANIMALCULES—THEIR ORGANIZATION AND FUNCTIONS.

The globules of blood, small as they are, are exceeded in minuteness by innumerable creatures whose existence the microscope has disclosed, and whose entire bodies are inferior in magnitude to the globules of blood. Microscopic research has disclosed the existence of animals, a million of which do not exceed the bulk of a grain of sand, and yet each of these is composed of members as admirably suited to their mode of life as those of the largest species. Their motions display all the phenomena of vitality, sense, and instinct. In the liquids which they inhabit they are observed to move with the most surprising speed and agility; nor are their motions and actions blind and fortuitous, but evidently governed by choice and directed to an end. They use food and drink, by which they are nourished, and must therefore, be supplied with a digestive apparatus. They exhibit a muscular power far exceeding in strength and flexibility, relatively speaking, the larger species. They are susceptible of the same appetites, and obnoxious to the same passions as the superior animals, and though differing in degree, the satisfaction of these desires is attended with the same results as in our species. Spallanzani observes, that certain animalculæ devour others so voraciously that they fatten and become indolent and sluggish by over-feeding. After a meal of this kind, if they be confined in distilled water so as to be deprived of all food, their condition becomes reduced, they regain their spirit and activity, and once more amuse themselves in pursuit of the more minute animals which are supplied to them. These they swallow without depriving them of life, as by the aid of the microscope, the smaller, thus devoured, has been observed moving within the body of the greater. The microscopic researches of Ehrenberg have disclosed most surprising examples of the minuteness of which organized matter is susceptible. He has shown that many species of infusoria exist which are so small that millions of them collected into one mass would not exceed the bulk of a grain of sand, and a thousand might swim side by side through the eye of a needle. The shells of these creatures are found to exist fossilized in the strata of the earth in quantities so great as almost to exceed the limits of credibility. By microscopic measurement it has been ascertained that in the slate found at Bilin, in Bohemia, which consists almost entirely of these shells, a cubic inch contains forty-one thousand millions; and as a cubic inch weighs two hundred and twenty grains, it follows that one hundred and eighty score millions of these shells must go to a grain, each of which would consequently weigh the 187,000,000th part of a grain. All these phenomena lead to the conclusion that these creatures must be supplied with an organization corresponding in beauty with those of the larger species.—*Lardner's Hand-Book of Natural Philosophy.*

WONDERFUL AND TRUE.

With a very near approach to truth, the human family inhabiting the earth has been estimated at 700,000,000; the annual loss by death is 18,000,000. Now, the weight of the animal matter of this immense body cast into the grave is no less than 624,400 tons, and by its decomposition produces 9,000,000,000,000 cubic feet of gaseous matter. The vegetable productions of the earth clear away from the atmosphere the gases thus generated, decomposing and assimilating them for their own increase. This cycle of changes has been going on ever since man became an occupier of the earth. He feeds on the lower animals and on

the seeds of plants, which in due time, become part of himself. The lower animals feed upon the herbs and grasses, which, in their turn, become the animal; then, by its death, again pass into the atmosphere, and are ready once more to be assimilated by plants, the earthy or bony substance alone remaining where it is deposited; and not even these, unless sufficiently deep in the soil, to be out of the absorbent reach of the roots of plants and trees. Nothing appears to me so cannibalising as to see a flock of sheep grazing in a country churchyard, knowing it to be an undeniable fact that the grass they eat has been nurtured by the gaseous emanations from my immediate predecessors; then following up the fact that this said grass is actually assimilated by the animal, and becomes mutton, whereof, I may, perhaps, dine next week. "Truth is stranger than fiction," and here is a truth that exemplifies the proverb. It is not at all difficult to prove that the elements of which the living bodies of the present generation are composed, have passed through millions of mutations, and formed parts of all kinds of animal and vegetable bodies, in accordance with the unerring law of nature and consequently we may say with truth that fractions of the elements of our ancestors form portions of ourselves. Some of the particles of Cicero's or Æsop's body, peradventure, wield this pen. Thus saith the chemist; now listen to the words of the poet, "To what base uses may we return, Horatio!" Why may not imagination trace the noble dust of Alexander till he find it stopping a bung-hole? To follow him thither with modesty enough, and likelihood to lead it, as thus:—Alexander died—Alexander was buried—Alexander returneth into dust—the dust is earth—of earth we make loam, and why of that loam, whereto he was converted, might they not stop a beer barrel?

"Imperial Cæsar, dead, and turned to clay,
Might stop a hole to keep the wind away;
Oh, that that earth, which kept the world in awe,
Should patch a wall to expel the winter's flaw!"

SIR ROBERT GILLESPIE'S HORSE.—The General possessed a horse which has become almost historical. This was a favorite black charger, bred at the Cape of Good Hope and carried with him to India. When the noble soldier fell at the storming of Kalunga, this charger was put up for sale, and after great competition, was knocked down to the privates of the 8th Dragoons, who actually contributed their prize money to the amount of £500, to retain this memorial of their beloved commander. This beautiful charger was always led at the head of the regiment on a march, and at the station of Cawnpore, took his ancient post at the colour stand, where the salute of passing squadrons was given at drill, and on reviews. When the regiment was ordered home, the funds of the privates running low, he was bought by a gentleman, who provided funds and a padlock for him, where he might pass the remainder of his days in comfort; but when the corps had departed, and the sound of the trumpet was heard no more, the gallant steed pined away, refused his food, and on the first opportunity, being led out for exercise, he broke from his groom, galloped to his ancient station on parade, neighed loudly again and again, and there, on the spot where he had so often borne his master, he dropped down and died.—*Bentley's Miscellany.*

TRAVERSING THE EARTH.—The circumference of the earth measures 25,000 miles: if it were begirt with an iron railway, a train carrying 240 passengers would be drawn round it by the combustion of thirty tons of coke, and the circuit would be accomplished in five weeks.—*Lardner on the Steam Engine.*

THE WEATHER, CROPS MARKETS, &c.

The past month has been distinguished for dryness, with sudden changes of temperature, although in some parts of the Province copious showers have fallen. The wheat upon the whole is looking well, though there are some situations, particularly in the back townships, where it has greatly suffered from the effects of the late severe and protracted winter. Spring grain and hay will probably prove light, but warm growing showers may yet do much for the former; and while we are writing, atmospherical influences are decidedly more favourable. Our exchanges speak favourably of the crops in the United States, and the last accounts from Great Britain, and several parts of the European continent, are of an encouraging character. Abundance and cheapness are therefore likely to continue in the ascendant; that is, of course, if the will of Providence, be pleased to ordain it. It is now confidently asserted and believed by all parties, that the new British ministry will not attempt any re-imposition of a duty on corn. The prospect for fruit is, in some respects good; apples will probably prove abundant, but most kinds of stone-fruit are greatly afflicted by the Curculio, whose devastations appear yearly to increase; and the fruit buds of the peach, in many situations, have been injured, or rather completely destroyed, by the severity of last winter. We get similar accounts from most of the fruit-growing districts of the States. The grain markets in England continue much the same as for some time past; and but little change has to be noted in reference to our own. Another month will enable us to speak with more confidence of the probable result of the growing crops.

Letters



Patent.

TIME & LABOR SAVED ARE MONEY EARNED!

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THE CANADIAN AGRICULTURIST

AND Transactions

OF THE BOARD OF AGRICULTURE OF UPPER CANADA.

VOL. IV.

TORONTO, AUGUST, 1852.

NO. 8.

AGRICULTURAL SOCIETY OF THE UNITED
COUNTIES OF FRONTENAC, LENNOX
AND ADDINGTON.

OFFICERS FOR 1852.

President.

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GUSON, THOMAS SCOTT, AND HENRY ARM-
STRONG, ESQRS.

A Meeting of the Inhabitants of the United Counties, interested in the Agricultural prosperity of these Counties, was held at the Court House, Kingston, on the 18th Feby., 1852, at 1 o'clock p. m., for the purpose of forming themselves into a County Agricultural Society of the United Counties of Frontenac, Lennox and Addington, under the provisions of the new Agricultural Act, of the Provincial Legislature 14 & 15 Vic. 6, Cap. 127, when the declaration as contained in schedule A attached to the said act, was signed, and the amount of subscriptions as by law was completed.

BY-LAWS.

Whereas, by the Act of the Provincial Parliament now in force, for the better organization of Agricultural Societies in Upper Canada, power and authority are vested in each County Society to make, alter, and repeal, By-Laws and Rules, for the regulation of such Society, and the carrying out of its objects.

No. 1. That the funds of this Society shall be deposited wherever it shall be ordered by the President and Vice-Presidents, by resolution entered on the Minute Book, to be kept by the

Secretary, and that said funds shall not be withdrawn from such place of deposit, except for the payment of the debts due by the Society, on the order of the President countersigned by the Treasurer.

2. That in order to accumulate means for the purchase of Books, Seeds, Stock, Implements, a Model Farm, or any other property; or to defray any expense allowed and contemplated by the third section of the Act above recited, a sinking fund is hereby formed, and shall consist of the balance at present on hand, debts, if any, due to the former Society, and all subscriptions collected from time to time that shall be over and above the sums mentioned in said Act, as necessary to obtain the full Government allowance of money annually, and also of any balance that shall remain at the end of each year unexpended by the Society, and such other sums as the Directors of the Society, may in their discretion, deem advisable to appropriate towards said sinking fund, and no moneys shall at any time be appropriated from such sinking fund for the payment of premiums awarded at Exhibitions or Ploughing Matches.

3. That no office-bearer or office-bearers of this Society shall incur any debt whatsoever in the Society's name without previous authority from the President and Directors, and no liability whatever shall be incurred by the Society beyond the amount of money at the time under its control.

4. That from this time a Stud Book, and also a Herd Book, shall be kept by the Secretary for the purpose of recording the pedigrees of Full Blood Horses, and pure Durham Cattle; and that no entry shall be made in either of such books without the approval of the President and Directors. That also a Herd Book be kept for pure blooded Ayrshire, Devon and Hereford cattle, in which it shall be required to register each animal, and that prior to each registration, the President and Directors of the Society shall

be satisfied after strict scrutiny that to the best of their judgment, such animals are pure in blood.

5. That the Judges shall admit no pure blooded animal into competition in any class except such as are entered in the Stud or Herd Books.

6. That no Full Bred Cattle shall be allowed to compete in the class of Grades.

7. That there shall be two classes of Sheep, namely, the Leicester, and the Southdowns.

8. That there shall be two classes of Pigs, namely, the Small and the Large size.

9. That the premium list, and the time and place of holding the Fair and Cattle Show, be published annually, at least six months before the time at which it is to be held.

10. That there shall be quarterly meetings in each and every year for the discussion of Agricultural subjects, on the second Tuesday in March, June, September, and December. The subject for discussion to be named at the Meeting prior to the time of discussion.

THE PRESIDENT'S ADDRESS.

Gentlemen, since much important business will necessarily occupy the attention of this meeting, I may be permitted, without further prelude, to inform you that the Act, by virtue of which the Agricultural Societies of these United Counties have been organized, was repealed on the 30th of August last, and that, therefore, until, under the Law now in force, a Society be re-organized, we cannot legally proceed to business.

Having thus complied with the requirements of the law, and formed ourselves into a society, it will devolve upon us, as a first duty, to proceed to the election of the necessary officers,—a President, two Vice-Presidents, a Secretary and Treasurer, and five Directors, in addition to those who by reason of their office as Presidents of the Township Societies, are already such.

By reference to the third section of the Act, you will find that the objects contemplated by the Legislature, and to be embraced by this Society, are :

“To encourage improvement in Agriculture, by holding meetings for discussion, and for hearing lectures on subjects connected with the theory and practice of improved husbandry; by promoting the circulation of Agricultural periodicals published in the Province; by importing or otherwise procuring Seeds, Plants and Animals of new and valuable kinds; by offering prizes for essays on questions of scientific inquiry relating to Agriculture; and by awarding premiums for excellence in the raising or introduction of stock, the invention or improvement of Agricultural Implements and Machines; the

production of grain and all kinds of vegetables, and generally for excellence in any agricultural production or operation; and also by the acquisition and cultivation by any such County, of a Model Farm, if deemed advisable by such Society.”

Whilst anxious that each of the several heads above referred to may be discussed by some members of our Society, I feel more particularly desirous of calling your attention to the “awarding of premiums for excellence in the raising or introduction of Stock.” Under the present circumstances and with present prospects—hay at five dollars per ton, and wheat at three shillings per bushel—it may be suggested that possibly a greater attention to the raising and introduction of stock might be an improvement on the practice which now prevails within these Counties. An increased stock would cause a greater consumption of fodder—would increase the means of fertilization, diminish the extent of surface to be ploughed, and thereby lessen the cost of labour; nor is it unworthy of consideration, that whilst our clay soils in this neighborhood are more difficult of cultivation, they are more suitable for pasture than lighter soils, especially when care is taken to sow clover wherever it is not of spontaneous growth; and this opinion is further strengthened by the consideration that the completion of the Rome and Cape Vincent Railroad, with its terminus at our very doors, has brought a great Southern Market within our reach; thus enabling a farmer on any given day to fill a car with his own fat sheep or bullocks, and within twenty-four hours hold in his pocket the New York price of them, with the additional advantage of a pleasant trip. In recommending an improvement in the breed of our Stock, as well as an increase of the quantity, and better premises, and more care for their housing and winter-feeding, there is no intention to detract from the merits of the plough, the parent of all good husbandry, the means of sustenance for man and all animals, on which his comforts more immediately depend. To succeed in one of these important branches of husbandry, is to furnish the means of success in the other; but wheat being the universal staple article of exportation from all agricultural countries, if we find that we cannot with equal success compete in its profitable production against countries nearer the chief market, then we may be acting judiciously in making inquiry whether our land, labor, and capital, may not otherwise than in the raising of grain for exportation, be more profitably employed.

But confining our attention to the matter of Stock within these counties, is there not apparently much evidence of the necessity of some improved method of managing and providing

proper houses or sheds for them? In the absence of great general improvement in this respect, the outlay of money in the purchase of the higher priced stock may be regarded as little better than so much waste. In summer, with good pasture and water, cattle need little attention. In winter, labour is cheaper; we are thus rendered more inexcusable for not bestowing proper attention on them.

Whilst thus adverting to this subject, it may not be deemed inappropriate to notice a statement which appears in the "Prize Essay on Agriculture," to which was awarded the Gold Medal given by the Directors of the Johnstown County Agricultural Society. The author of the Essay, after much valuable information on ploughing, sowing, Draining and Manuring, thus writes:

"It appears to me to be one of the greatest inconsistencies, and indeed absurdities, with which we farmers can be charged, that we have individually and collectively, as Societies, taken much pains, and incurred much expense, to improve our breed of cattle without making a simultaneous movement to procure the succulent food and increased shelter, the extra supply of clover hay, without which the so-called improved breeds certainly produce no improvement to the farmer."

From this, few will be disposed to dissent.

But of a subsequent and more important statement on stock and sheep, no farmer in this neighbourhood, with whom I have conversed, seems to approve. Respecting the Durhams, Devons, and Herefords, he says,—

"Of these three, I think the Herefords are the best for us, and the Devons the next best. The Durhams are evidently and deservedly going out of favour." Now, were the author writing in reference to the particular locality in which he himself resides, his views might possibly be correct; but when, taking a wider range, he asserts, without qualification or limitation of any kind, that "the Durhams are evidently and deservedly going out of favour," it is fair to suppose that he includes, in this sweeping assertion, not only Canada in its widest extent, but the Mother Country likewise.

Of such a declaration, it will, I think, be deemed a sufficient refutation to remind you that the Durham Bull, Cow and Heifer, have for many years, as well individually as in herds, commanded higher prices than any other description of cattle, both on this continent and at home; and when brought into competition with others, still continue to carry off the highest premiums.

The famous short-horned Bull 'Belleville,'

took all the first premiums in England, Ireland and Scotland, in 1850.

The short-horned Bull 'Bamboo,' the property of the Hon. A. F. Nugent, was in 1851, at the Smithfield Cattle Show, awarded the first prize of thirty sovereigns, as the best Bull in his class; a first class Medal, as the best in his section; the Gold Medal, as best of all Bulls; and the Purcell Challenge Cup, *as the best in the Show Yard!* He was a Calf of 1847.

At the same Show, the short-horned Heifer 'Buttercup,' the property of Charles Townly, Esq., was awarded the first prize of ten sovereigns, as the best in her class, and the Gold Medal, *as the best of all Cows or Heifers exhibited at the Show.* The owner of her was likewise presented with a Medal, as the breeder of the best Cow or Heifer.

Again, when Short Horns have been sold in large herds, they have brought higher prices than any other description of cattle in England, Ireland, Scotland, the United States and Canada. Let me instance the sale of the stock of Mr. Vail, of Troy, in June 1851, at which calves of the Durham breed sold for over fifty pounds; even throughout Upper Canada, those that have Short Horns value them so highly that they demand and obtain prices beyond belief for them; as high as fifty pounds has been refused by Wm. Ferguson, Esq., who lives within two miles of the City of Kingston, for a Durham Heifer Calf when it was only nine months old. Thirty-seven pounds were paid last year by the Agricultural Society of the Township of Kingston for a Durham Bull Calf 12 months old; and as for the high prices for which Durham cattle sell in the Mother Country, it were but waste of time to quote what every reader of Agricultural works must be well aware of. Now, if there be any truth in the saying, that "the value of any thing is the price it brings in the market," then it cannot be proved that "the Durhams are evidently and deservedly going out of favour."

SHEEP.

The author of the Prize Essay writes as follows—

"As for sheep, there are none better than are to be found all over the Upper Province. We are not surpassed in any part of England, nor can there be a better sheep for our purposes than the Leicester and Southdown crossed, if only the cross could be kept pure and not too long intermingled. At the late Shows of this Association, there have been sheep submitted to inspection capable of competing with the sheep of any country in the world, whether in weight

of carcass, equality of wool suited to the wants of the country, or excellence of mutton."

The writer appears to me to be greatly mistaken about the weight and quality of our mutton in Upper Canada generally, as compared with what is to be found in the Mother Country.

The best sheep exhibited at our Provincial competition in 1851, were that year's importation from the Mother Country; and the next best were either imported, or the progeny of such as had been imported a few years previously. These were very good sheep unquestionably, but then the number of such in the Province is very small. It is doubtful, however, if there are to be found at this present time on the whole of the North American Continent, two sheep, the weight of whose united carcasses would equal that of some single sheep occasionally to be found in England; such an animal of the Cotswold breed, was that exhibited by Mr. William Cother at the Smithfield Cattle Show in 1851; it was between three and four years old, and the carcass weighed 336 pounds, and that was not the largest of his flock. And again, as respects the quality of the mutton, those who from experience are qualified to give an opinion on the subject, have pronounced in favour of the little black-faced Highland sheep, when fattened on the rich pastures of England, as preferable not only to the Leicester and Cotswold, but to all others.

To suffer ourselves to be misled by random assertions or hasty generalizations, or to flatter ourselves with the belief that we are already, in particular branches of husbandry, quite on a level with the most skilful and advanced in any country, may be gratifying to our vanity, but possibly not equally serviceable to the cause of Agriculture, nor accordant with truth; and it must be confessed that little benefit can be derived from either "Essays" or "Reports," where mere prejudices and opinions are made to supply the place of well ascertained facts.

It will be satisfactory for this meeting to know that the Provincial Association have directed their Secretary to open a Herd and Stud Book; this will prevent the admission of Grade Cattle, into competition with the full bred Short Horns, and will prove beneficial to breeders of Horses and Farmers generally. Up to the present, it had devolved on the Judges, not only to decide respecting the merits of the individual animal, but also the purity of its pedigree. This was wrong, inasmuch as it imposed too great a burden on them, and because the grade is found sometimes to look better than even the full breed.

Now, we may hope that the Directors will take the responsibility, accurately to distinguish

the full bred from the grades, and leave the Judges to merely determine, from the particular points and general appearance of the animal, which is the best.

It would be advisable that the Secretary of this Society, also, should keep a County Herd and Stud Book for Durham Cattle and Blood Horses, so that no animal should pass as full bred, that is not so really; and that the Directors of this Society, at Exhibitions, should be considered accountable for the distinctions of breed; not the Judges.

Our County Show in October last, was highly creditable, both as respects the number and quality of the cattle and productions exhibited, and as no complaints have been heard regarding the manner of conducting it, the prospect is so much better that the next will far excel it.

Judges should always be appointed some weeks prior to the Exhibition, so that if unable to attend, sufficient time may be allowed to appoint others to supply their place; but it can never answer the purpose of a County, much less of the Provincial Association, to leave the appointment of Judges undetermined till the very day on which their services are actively required; and here I may be allowed to remark, that any distrust arising out of the manner of appointing the Judges, would prove more really injurious to any Society than even erroneous decisions on the part of the Judges. The former might wear the appearance of or be interpreted into design to favour particular sections of the country, whilst the latter would be attributed to ignorance and mistake.

When Breeders take the trouble and incur the expense of transporting valuable pure blooded cattle, at no small risk of injury from accidents, it cannot be satisfactory to them to see grade stock brought into competition with them—no proof of pedigree insisted on, perhaps not even demanded—Judges, such as in the haste of the moment can be found, appointed on the spot, the Directors knowing no more of their competency than merely that they are nominated by some one, who not, improbably, knows that they have a very high opinion of the cattle of the very party who thus proposes their appointment. Even in the Provincial Association, (well as it has been conducted in general,) this has been felt, and no Exhibition has yet taken place in the Province, at which there have not been glaring instances of Grade cattle taking premiums as full bred Durhams.

The practice of scraping horns, and of shearing sheep, so as to leave a large portion of wool on them, to increase the bulk or improve the shape, is also practised by some breeders in Canada, yet such a course must justly be looked

upon to be highly disreputable, and should not any longer be suffered.

That breeders should be eager to obtain Premiums, is not to be wondered at, not for the sake of the Premium alone, but because in the sale of their spare stock their success at competitions is a guarantee for high prices. This laudable ambition to maintain a high character for all kinds of stock, is a fertile source of improvement; and under the improved management now about to commence, cannot fail to produce many beneficial results.

It may be thought ungenerous to make some of these remarks, but the whole scheme of the Agricultural organization, as a Provincial Association, and as County and Township Societies, is so noble a design on the part of the people of this Province, and its good working is of so much importance, that every well-wisher of his country should lend a hand to point out, and thereby rectify any abuse, which can be suspected of retarding its growth in the confidence of the country, or diminishing its usefulness in any way whatsoever.

TOWNSHIP OF WOLFE ISLAND AGRICULTURAL SOCIETY.

1851.

RECEIPTS.		£	s.	d.
Subscriptions, - - - - -		16	15	0
Government Grant, - - - - -		15	0	0
Balance last year, - - - - -		9	13	8
		41	8	8
DISBURSEMENTS				
Paid in Premiums, - - - - -		36	19	6
Treasurer and Clerk's Expenses, - - -		1	15	0
Balance in hand, January, 1852, - - -		2	14	2
		41	8	8

In offering a remark or two on the Agriculture of the Township, I can only say that our improvement is but small in comparison with some neighbouring townships; nevertheless, a considerable advance has been made during the past year more especially; the farmers in general having paid better attention to the improvement of their stock and farms, and we have now a fine assortment of horned cattle of several breeds, mostly imported, as well as some excellent native cattle of the country. We have also a very superior kind of sheep to anything I have hitherto seen in the country; but the improvement in Horses is not what I could wish it to be, mainly in consequence of not having a good stallion, otherwise I consider the Township to be in a satisfactory and flourishing condition.

H. O. HITCHCOCK,
President.

Wolfe Island, Feb. 18th, 1852.

The following Townships of the United Counties, have organized under the new Agricultural Statute:—

Township of Kingston;—Loughborough; Amherst Island; Camden; Richmond; Portland; Wolfe Island; and Pittsburgh.

UNITED COUNTIES OF MIDDLESEX AND ELGIN AGRICULTURAL SOCIETY.

To the Board of Agriculture of Upper Canada.

Agreeably to the Statutes cap. 127, 14th and 15th Victoria:

We, the President, Vice-Presidents, and Board of Directors of the Agricultural Society for the United Counties of Middlesex and Elgin, beg leave to report as required by the 7th sec. of the said Act; and refer the Board to the papers marked No. 1—the names of members and amount of their several subscriptions.

No. 2. Prize List or Premiums awarded to animals and various other articles, as well in the spring as in the autumn of the last year.

No. 3. A detailed statement of the receipts and disbursements of the Society during the said year, and also the accompanying Reports received from Township or Branch Societies for the present year.

In making this Report, your Board have to state, that, previous to the present year, only three Branch Societies had been formed, viz., Malahide, St. Thomas, and Adelaide, and from which no Report for the last year has as yet been received. At the same time, it will be proper to remark, that other Townships are taking the advantage of the above recited Act in forming themselves into Township Societies.

Your Board would further remark, that it would have been a matter of gratification to have embodied in this Report a full and accurate statement of the Agricultural statistics of the said United Counties, had it been in the power of the Board to have furnished it, but inasmuch as the Census Commissioner is not yet in the possession of the necessary information, your Board will avail itself at a future time of the liberty of transmitting to the Board of Agriculture as full and correct an account of the Agricultural products of the said United Counties as the said Census Commissioner can furnish, with such further observations as may present themselves to the said Board of Directors.

Your Board would further Report that it is a deep and settled conviction with its several members that Model Agricultural Farms wherever practicable, would be one of the best and most effectual means of increasing true and correct information in the theory and practice.

of Agriculture, and if by any means such a step in each County could be effectually carried out, that the Province generally would be raised in Agricultural information and character, and proportionably benefited, and more especially so if in connexion with the said Farms a good and well selected Library, bearing upon Agricultural pursuits, were associated with the said Farms.

Your Board would further report, that, in order to show the depth and sincerity of this conviction, it has already submitted to the County Council a Plan to be by the said Council submitted to the several Township Councils, to be in turn reported upon by them, and thus a body of correct information on the said subject might be collected to enable the County Council to act with a becoming liberality in providing for the education of those Agricultural students who may be placed upon the said model farms, a copy of which communication is hereunto annexed.

It is further the opinion of your Board of Directors that the Board of Agriculture, in complying with the requirements of the 13th and 14th Victoria, cap. 73, section 12, would confer a lasting benefit upon the Agricultural interests of Canada by following up the above suggestions in an earnest appeal to the Legislature in the coming session of the Provincial Parliament, and to request from the Legislature an enactment making it imperative in the several County Councils to provide for the said Agricultural students, education in part or in whole, and also a proper and well selected Library, and the selection of which to be under the direction of the Professor of Agriculture in the Toronto University.

In conclusion, your Board would beg to suggest that one Model Farm under the direction of the Board of Agriculture would not alone subserve the interest of the whole Province, and, however efficiently managed by the said Board, it would but be a Normal School in the science of Agriculture, to which may be added the inability of a very large proportion of the Agricultural community to sustain the sons and friends of farmers at the Toronto Model Farm. And further, in connexion with the proposed system of Model Farms, your Board would suggest that great and speedy improvement in the quality of the different kinds of stock would result from the Board of Agriculture taking the initiative and responsibility of importing stock, to be by it sold by auction at the Annual Fairs, subject to the conditions under bond of the different animals being required to serve in the County or Counties for years. All of which is respectfully submitted.

Approved in open meeting this 23rd day of March, 1852.

(Signed) JOHN B. ASKIN,
President, &c., &c.

James Farley, Secretary.

To the Municipal Council of the County of Middlesex, in session assembled :

The President of the Agricultural Society of the County of Middlesex has the honour of requesting the permission of laying before you, for your consideration, before the close of your present sittings, a plan which it is proposed to be submitted for approval and countenance throughout this noble county.

It is proposed to establish for the purpose of giving example and of making experiments in the science of Agriculture, a Model Farm, to be the common property of all the inhabitants of the United Counties of Middlesex and Elgin, in perpetuity for the above uses, and all such other uses, as may be conducive to giving encouragement to the pursuit of Agriculture within the same.

Secondly. It is proposed to establish a school in connexion with the said Model Farm, and to be erected on the limits of the same, for the purpose of educating such youths and others, as shall be sent thence, to learn the science of Agriculture, and to be educated in all other branches of education, except the classics.

Thirdly. For the establishment of a Class or Branch, within or in connexion with the said school, so to teach and instruct the student the science of analyzing the various soils, and for ascertaining their properties, with a view to their application, how best they could be adapted to the growth of grain, vegetables, &c.

The first of these will comprise the expense of purchase of at least 100 acres of land, with the buildings that may be found necessary, estimated at say £1500, to be paid for by the Agricultural Society with such means as they may have at their disposal, and such subscriptions as may be contributed therefor by a generous public.

Secondly and thirdly. The expense of *education* being one of a legitimate character and coming more particularly within the scope and jurisdiction of the authorities vested in Municipal Councils, and being so recognized by law, it is hoped that the Municipal Council of this noble County will not refuse to grant such a sum annually as may be sufficient for the purpose of education only.

And lastly. It is but just and reasonable to hope that the parents of such youths as may be sent to the Model Farm for tuition, will not

think it unreasonable to pay for the board of their children during the time of their tuition at the Model Farm.

The President of the Agricultural Society, with the members who are associated with him, respectfully submit the above plan, in full confidence and hope that their endeavours to elevate the position, character and mind of that class of persons whose pursuits are more immediately connected with Agriculture, may receive at your hands that cordial and hearty support and assistance as a body, comprising the united intelligence, enterprise and energy of this County for the attainment of an object, which has for its purpose the infusion of knowledge, thereby benefitting the rising generation; not only by subscriptions liberally given to carry out, in the fullest extent, the object in view, but also by giving the same same your individual assistance and by taking part in the management thereof; to which you are respectfully invited.

JOHN B. ASKIN,
P. A. Sec'y.

London, 19th Dec., 1851.

The Agriculturist.

TORONTO, AUGUST, 1852.

DONLAN'S FARMERS' FLAX MACHINERY.

We are indebted to Mr. COMMISSIONER WIDDER for a Prospectus, recently issued in England by Mr. Donlan, detailing some highly important and interesting facts relative to an entire new method of preparing flax for manufacturing purposes, without subjecting it to the tedious, expensive, and sometimes uncertain processes of steeping, scutching, or hackling. The following copious extracts will give the reader some idea of the promised advantages, both to England and her Colonies, of this important discovery; and the subjoined extract from a private letter to Mr. Widder, from the Chairman of the *Canada Company* in London, shows the interest which that influential body is taking in the matter as regards Canada. We may therefore expect to see at our approaching Provincial Exhibition, the most improved Flax Machine extant.

Hemp and Flax Growing Patrons are respectfully informed that this is the only discovery ever

made by which Hemp and Flax Growers may find ready and profitable Markets for their respective crops when divested of Seeds, Roots, and Weeds, and without having recourse to the wasteful, tedious, uncertain, and expensive methods of steeping, drying, and mill scutching, hitherto in general use.

Great Britain is annually paying (as near as may be) *nine millions one hundred thousand pounds sterling* for Hemp, Flax, Flax Seed, and Oil Cake, to foreign nations—all of which could be produced in the United Kingdom; and the Inventor respectfully announces, that the produce in fibrous material of at least one million acres, when prepared by his processes, could find ready sale both for Home and Foreign consumption.

There are upwards of one hundred and fifty thousand ships and vessels, including coasters, employed in the service of the British Empire, and not even one of these is now supplied from materials grown within her Majesty's dominions. The Hemp trade is now and has been exclusively, in the hands of foreign powers.

The Right Hon. Sir James Graham, in his Speech upon this subject in Cumberland, stated that we wanted the produce of 700,000 acres for Home Consumption alone, and that our present growth in the United Kingdom did not exceed 150,000 acres annually, and that he would have the plant extensively cultivated in the coming season.

The Right Hon. gentleman mentioned the difficulties of finding a Market for the Flax Straw, but this obstacle would be entirely removed by the adoption of my processes, which will give to the manufacturers a class of cheap, strong, sound, and healthy fibrous substances never hitherto within their control; and also give to the Farmers an additional profit of at least £5 upon every acre under Flax cultivation.

FLAX GROWING IN ENGLAND.

Mr. Samuel Druce, of Ensham, stated to the Council of the Royal Agricultural Society of England, on the 26th of February, 1851, the result of his practical experience in the growth of flax in Oxfordshire, and particularly the results of his last year's crop, which he had drawn out for the information of the members into a balance sheet, of expenditure in cultivation, and realization by sale of produce; he thought this statement would satisfactorily show to them the value of the flax crop, and the attention which, under present circumstances, it appeared to deserve. His property lay on the Oxford clay formation, and the piece of ground on which the trial of cultivation, to which he referred, was made; consisted of a deep red loam, and in extent was 5 acres, 2 roods, 36 perches.

Rent of Land at 48s. per acre.....	£13	14	9
Taxes, at 6s. per acre.....	1	14	4
Flax Seed, 13½ bushels, at 9s.....	6	1	6
One ploughing, at 10s. per acre.....	2	17	3
Sowing and harrowing, at 1s. 6d. per acre	0	8	0
Weeding, at 2s. per acre.....	0	11	5
Pulling Flax, at 14s. per acre.....	4	0	1
Carting and stacking, at 4s. per acre...	1	2	10
Thrashing.....	5	7	1
Winnowing.....	0	12	6
	£36	9	9

SALE OF PRODUCE.

Sale of Flax Seed, 116¼ bushels, at 8s..	46	10	0
Sale of Flax Straw, 12 tons, 2 cwt. 2 qrs. at £3 per ton.....	36	7	6
Sale of Chaff, at 5s. per acre*.....	1	8	7
	£84	6	1

Leaving a net profit of £47 15s. 9d. on the 5A. 2R. 36. or a trifle more than 5½ acres of land employed in this trial of Flax cultivation; and Mr. Druce concludes by expressing his conviction that Flax is not at all an exhausting crop.

FLAX GROWING IN IRELAND.

I beg to submit the following Report upon the merits of my Saturated Flax Seed:—

Extract from the Monthly Reports for June, 1850, of Mr. John Grennan, Practical Instructor to the Scariff Union, to the Royal Agricultural Society.

“The Flax Crop, unless when bad seed was sown, (which I am sorry to say was imposed on the farmers in too many instances,) looks well.—The Patent Saturated Seed sent me from London by J. D. Macnamara, Esq., J. P., to have sown on his farm at Ayle, as also with the Rev. Mr. Sheehy, has proved itself superior to the best Rig-a-Seed that could be purchased, sown on the same day, same land and preparations: and should it carry its superiority in the after manufacture of the fibre, I know not its value, as compared with all other kinds of Flax Seed that I know.

(Signed,) JOHN GRENNAN.”

The growth of Flax in Ireland in 1851 has extended to 138,000 acres, average produce 3 tons to the Irish acre, or 414,000 tons of Flax Straw, which at £3 per Ton would reach £1,242,000.—

Eighteen bushels of Flax Seed to the acre at 5s. per bushel would bring £621,000. Money value to the growers should be at least £1,863,000, but I can fearlessly assert that the growers will lose at least one-third of this sum by the common methods of preparation they are driven to adopt.

This quantity of 414,000 Tons would yield one fourth, or 103,500 Tons of available fibre, which at £32 per Ton, the minimum rate offered in the market, would bring £3,312,000, so that the Company established for this Commerce would obtain a scale of interest for their Capital not usually expected from commercial undertakings.—

* The Chaff is underrated, inasmuch as that it is considered preferable, when properly prepared, to light oats for cattle feeding.

Full and detailed accounts are ready for the inspection of those willing to take an interest in this important business; added to this it will open a new source of additional employment annually to thousands of the labouring poor, from which they have hitherto been entirely deprived.

The Earl of Glengall stated in the House of Lords the 26th of March, 1852, that there were 780,000 paupers in the Irish Workhouses last year; that the average deaths were 1000 per week; and that there were 139,000 acres under wheat cultivation in Ireland less in 1850 than in 1847; but much of this state of misery may be relieved by an universal cultivation of Flax.—Emigration and premature deaths have decreased the Irish population to an alarming extent. But suppose, for example, that an equal quantity to the above 414,000 tons (the produce of 1851) were converted by manual labour into 103,500 tons of flax of commerce by my processes, and that the operation could be finished in one year, or forty-eight working weeks, employment could be given to upwards of 71,000 people, at the maximum rate of wages now paid in Ireland, viz:—men one shilling per day, women eightpence per day, and boys and girls sixpence each per day. Thus paying for wages alone upwards of *one million sterling* for the above period—and this exclusive of the employment given in the agricultural departments of the undertaking. I therefore feel confident, that the exalted benevolence, at all times extended by the English nation to worthy objects, will not be wanting in giving relief to a class of human beings suffering by *famine, disease, and premature death.*

The first effective cordage ever yet made from Irish material, has been manufactured from flax produced by J. D. Macnamara, Esq., Justice of the Peace in the County Clare.

Offers have been made by several Hemp and Flax Brokers, in London, for supplies of No. 1—T. H. D. Flax, at the rate of 35s. per cwt. The samples I have sent to the Royal Exhibition have created intense uneasiness in all the foreign hemp and flax-growing nations, and frequent overtures have been made to me for the purchase of my Patent Rights. The Royal Commissioners have requested that these samples should be presented to them for exhibition in their contemplated Museum, with which request I have complied.

What England wants, and what her Farmers have, with careful industry, the power to supply to her, are strong fibrous substances, fit for conversion into the following articles, namely:—

Cordage, standing and running rigging, bolt ropes, lead and log lines, fine twine, twine ordinary, mackerel lines, seine and trawl lines, shrouds, white lines in variety of sizes, whale lines, fishing lines, fishing nets, sail cloths, rain awnings, hatchway covers, seamen's bags, hammock covers, fire engine and watering hose, as well as every other article made from hemp and flax required on ship board.

For inland consumption, packing, cordage, shoe thread, floor cloths, nail bags; corn and flour, coal and coke sacks; railway paulling cloths, waggon covers, cart covers, rick covers,

driving bands for machinery, bed ticking, coarse and fine towelling, coarse flax and tow sheeting. For tents, drills, and the respective fabrics required for ordnance uses. warps for carpets, horse-hair cloths and other cloths, as well as warps for silk and cotton velvets, fustians, corduroys, plushes, and a variety of other uses not here enumerated. There are but few, if any, of these articles supplied from materials produced in Ireland.

Extract of Report—(I have many others)—made upon the strength and merits of the New Sail Cloths, composed of alternate cloths, produced by my processes from Unsteeped Flax Straw, and the Phormium Tenax, or New Zealand Flax, as compared with the best known Manufacture of No. 1 Sail-cloth, made from the longs of the finest bleached and prepared Riga Flax:—

Royal Dock Yard, Deptford,
Jan. 12th, 1832.

“A strip 1 inch in width and 2 feet in length of New Zealand Flax, twilled woven Sail Cloth, with a knot in the middle bore, but not at the knot, a weight of

lbs.
624

“A ditto of best Scottish-made Canvass, knotted and in every respect similar,

561

“A Strip of Sail Cloth, made from Flax of Irish growth, for 1 inch in width and 2 feet in length, of the substance of No. 1, or heavy Sail Cloth, bore, carried, and broke at a weight of

834

“*Memorandum.*—In my belief the strongest Canvass ever known, it having actually borne, in the presence of six persons, eight hundred and thirty-four pounds avoirdupois.

“*Deptford Dock Yard, J. M.*”

N. B. The original document, from which this is copied, is signed by Mr. JOHN MORGAN, one of the Inspecting and Surveying Officers of Her Majesty's Dock Yard at Deptford, at the above date.

NOTE.—The chaff from one ton of unsteeped flax straw will average about 12 cwt.; it has been analyzed by Professor Way, who reports generally, that it is superior, in feeding value for cattle, to wheat straw, although perhaps inferior to good barley straw. The chaff from steeped flax is entirely deprived of this important property.

✍ In speaking of the waste of seed the Marquis of Downshire stated to the Royal Belfast Flax Society that on passing for miles through the country they were rolling the flax in the roads, in order that the seeds might be beaten out by horses or cart wheels; and it was quite in vain to draw their attention to the value of the seed, or the loss they sustained by so wasting it.

These respective manufactures do not of course come within the dominion of the agriculturists; but not so the raw material from which they are produced. To prove the merits of the fabrics manufactured, under my superintendence, from unsteeped flax, I beg to subjoin the following Report, made upon a sail composed of alternate

cloths of unsteeped flax and those made from the Phormium Tenax, or New Zealand Flax:—

Woolwich Royal Dockyard, Jan. 11, 1836.

“SIR,—In answer to your letter I beg to state that the foresail made from your preserved cloth has now nearly completed a service of FIVE YEARS, and has, during the whole of that period, been in constant use in every variety of weather; and, although this sail has met with the roughest possible treatment the crew could give it, and has been put by repeatedly in a wet state, with a view to excite mildew, still we possess no power to excite the slightest symptoms of premature decay in your cloth. (I have often been asked its price per yard.)

“I cannot help saying that I am greatly surprised at the extraordinary durability of this sail, and that during the whole period I have been in his Majesty's service (now about twenty-eight years) I have never met with sail cloth capable of bearing the same tests, or that has been the subject of so much curiosity and injury.

(Signed)

“WILLIAM ATKINSON, *Master.*”

“M. J. J. DONLAN, Esq.”

This new and important fibrous substance is applicable to all the uses to which Riga, Petersburg, Italian, Hungarian, and all other hemp and flax are now applied. The cultivation of this important produce (from which great Britain and Ireland are now nearly shut out) will open a new article of trade and commerce throughout the United Kingdom; but should the Growers meddle with, or torture the flax straw, by any commonplace Machinery, they will render it quite unfit for the service of Manufacturers. Upon this first process depends the value of the fibre, and if any false step be taken in it, the injury to the farmers will be incalculable, as the material so treated would be rendered unfit for manufacturing into the strong and important articles required for the general service of the country. I am warranted in stating that any offer by persons ignorant of the treatment of unsteeped flax straw to supply farmers with cheap machines for the purpose of reducing the bulk of the material, with the view to find sale for the fibre so produced, would be nothing less than a trap or snare, and pregnant with fraud and deception.

According to the rules which govern the patent laws, “No patent can be taken out for a principle until the party applying has invented some method for carrying the principle into effect; but, having invented this method, the patentee has the power of stopping every other mode of carrying the principle into effect.”

The principle and the machinery for extricating the fibres from the stalks without steeping, cracking, or tearing, are my exclusive property. Thirty years of my time and mind, and as many thousand pounds of my money have been employed and absorbed in chemical and mechanical researches connected with flaxen fibrous substances, and if any infractions are committed upon me I shall endeavor to punish the aggressors. Great care has been taken to convey the first

principle of *simple* action to this agricultural machinery, so as to enable the farming labourers to perform the operation with ease, thereby giving the balance of power and division of labour to Great Britain and her Colonies over all the Foreign Nations from whom we now receive supplies of fibrous substances.

M. J. J. DONLAN.

4, St. Peter's Square, Hammersmith.

P. S. To prove the insufficiency of large portions of the Foreign hemps and flax imported into Great Britain for the use of the Royal Navy, we have only to refer to the sales of what are called old stores, effected throughout her Majesty's principal Dock yards, when we shall find that hundreds of tons of weak hemps, sail cloths, &c. &c., are annually sold as unfit for naval purposes. It must be admitted that calico has, in many instances, displaced fine linens, and that the linen trade has been for some time past suffering severely in consequence. If Foreign powers are now allowed to purchase my discoveries, they will not only still maintain their present monopoly and prevent our becoming a self-supplying nation, but will deprive our growers of those advantages arising from a large export of fibrous substances which I feel confident my inventions will place in their power.—M. J. J. D.

The following Report by the Hon. R. H. Clive, M. P., Member of the Royal Agricultural Society of England, and published in the Mark Lane Express, dated the 10th of May, 1852, will be read with interest by the Landowners, Agriculturists, and Farmers.

FARMERS' FLAX MILL.—The Hon. R. H. Clive, M. P., informed the Council that he had paid a visit by invitation to the works of Mr. Donlan, in the Warwick Road, Kensington, where he had inspected the construction and operation of the Farmers' Flax Machines invented by that gentleman. Having taken with him a sheaf of his own flax straw, from which the seed had been removed, this straw was divided into four equal portions; and three of these being subjected to the action of Mr. Donlan's machines, the result was then submitted by Mr. Clive to the Council. The first portion was the original straw, on which no operation had been performed; the second was the next portion, which had gone through the first, or beating process; the third portion had gone through the beating process, and had also been passed through the double roller press, and undergone the rolling process; the fourth portion had been subjected to all the three processes,—namely, those of beating, rolling, and scraping, and gave the final results of about 25 per cent. of marketable farmers' flax, and about 12½ per cent. of tow. The whole of these machines were constructed in the simplest manner, but with the most exact adaptation of mechanical means for effecting the separation of the woody matter contained in the flax-stalk from the fibre required by the manufacturer; all the weak, imperfect fibres being retained, and only the strong and perfect ones being allowed to pass through. They were not of an expensive character; and could be worked either by men, women, or children, and by one person singly, or by several at the same time; horse, water, or steam-power might also be used, according to circumstances. The whole of the results then submitted to the Council had been attained by one man in the course of twenty minutes. This farmers' flax, produced under favorable conditions of the straw, was valued at £32 per ton, and the tow at about £12 per ton; and for the marketable article thus obtained, the farmer, who under present circumstances

could only dispose of his flax-straw at about £2 or £3 per ton, or not at all, would find in this country and on the continent a ready sale, the ton of straw, by this mechanical operation, yielding farmers' flax of commerce and tow, which together might be estimated at nearly £10; a sum from which would have to be deducted only the very small proportional part of the cost, rent, and wear and tear of the machines employed, and the labour required to work them. The flax, when dry, might be taken at once from the field without stacking, and, after the removal of the seed, was ready, without any other preparation, for this mechanical process, which was alike available to the smallest cottager or the largest occupier, and adapted either for manual labour or the application of machinery worked by any motive-power. He could not but regard this subject as one of great importance to the English farmer; and, as it had often engaged the attention of the Council, whose members had long considered such mechanical aid as this now referred to as a great desideratum, he felt that he was only discharging his duty as one of their body in calling their particular notice to the machines in question; at the same time, as the Council could not collectively deviate from their usual course, by giving any opinion themselves on an invention like the present, he would request a few of the members in their private capacity to accompany him to Mr. Donlan's works at an early convenient day, in order that they might inspect his operations more accurately in detail, and inform themselves of the full bearings of the question in a practical point of view.

N. B. To show the power I maintain over flax stalks, I have taken green flax straw from off the field in the morning, and had it converted into a strong pauling cloth in the evening of the same day. This operation was performed at the Rugely Factory in Staffordshire, in the presence of sixty individuals.

(EXTRACT OF LETTER ADDRESSED TO MR. WIDDER.)

Dated LONDON, 15th June, 1852.

"I send enclosed a prospectus, relating to the Flax machine of Donlan's invention, on the subject of which I have written you before. Mr. Clive's opinion at the foot of it, is the interesting part. We are trying to get into personal communication with Mr. Clive and the Royal Agricultural Society, with a view of getting this machine completed, and if possible of getting the machine itself, or a model of it, to send out to you.—Our inquiries lead us to think the machine could be very cheaply constructed, and might be worked by any kind of power, or by hand, without difficulty. I conclude your object is to bring this subject forward at the Provincial Exhibition in September, and, if possible, we will enable you. Mr. Perry went one day to the place where the machine may be seen at work, and was satisfied by what he saw, that the machinery is simple and effectual, and the flax comes out cleaned perfectly of the straw. He saw it when worked by hand. I enclose also a bit of the flax he saw cleaned.*

* This specimen we have in our possession; the preparatory process seems very complete, and the strength of the fibre quite unimpaired.—[EDITOR.]

ECONOMY OF FARM-POWER.—B. P. Johnson, in his letters from England, in speaking of the skilful farm arrangements of J. J. Mechi, the celebrated English agriculturist, says that by means of an high-pressure engine of six-horse power, he drives a pair of mill stones for grinding feed, threshes and dresses grain, pumps water, cuts chaff, turns the grind-stone, raises the sacks of grain, and the waste steam cooks the food for cattle and swine—the work being all performed in a first rate manner.

PAIGE'S TWO HORSE POWER THRESHING MACHINE.



We present our readers with a cut of this celebrated machine, for the purpose of calling their attention to its merits, and inducing them to think *twice* before spending their money for the great, lumbering, eight horse power machines so much in vogue in some parts of Upper Canada. The writer lately visited the shop of the manufacturer in Montreal, in which he employs over *one hundred* workmen who are engaged solely in the manufacture of these machines. Mr. Paige makes his own castings as well as everything else requisite in their construction; he selects his wood and lumber himself, and seasons it on his own premises; in fact his whole arrangements are the most thorough and complete of any we have seen in Canada, for the manufacture of a single article of this kind. Until this year Mr. Paige has had more orders from Lower Canada than he could supply, and consequently was able to spare but very few machines for this part of the Province. This year he has enlarged his establishment, and as will be seen by his advertisement, has appointed agents in Upper Canada.

We have not seen any of these machines in operation, except on the Fair ground, and cannot therefore speak of their performance from actual observation. But we heard intelligent farmers who *have tried* them, declare that they would not permit any other machine to be put in their barn. One great advantage in their favor is, that they may be put in the barn altogether. There is no difficulty in threshing in *rainy* weather with this machine, for it is so compact that it can be placed on the barn floor under cover. We have heard it objected to this kind of horse power that from the position of the horses when at work, they were liable to become lame, but we are told by those who have *tried* them, that horses will grow fat with constant work, if well fed, and that they are not so liable to be lamed as on the large machines.

The price is \$275 dollars and Mr. Paige agrees to make good without charge any defect of material that may be discovered within a reasonable period. The following is a comparison which he makes between the cost of threshing by his machine, and one of the eight horse-power. If \$11 or even \$5 can be saved in one day's threshing, every farmer will see at once a strong argument in favor of these

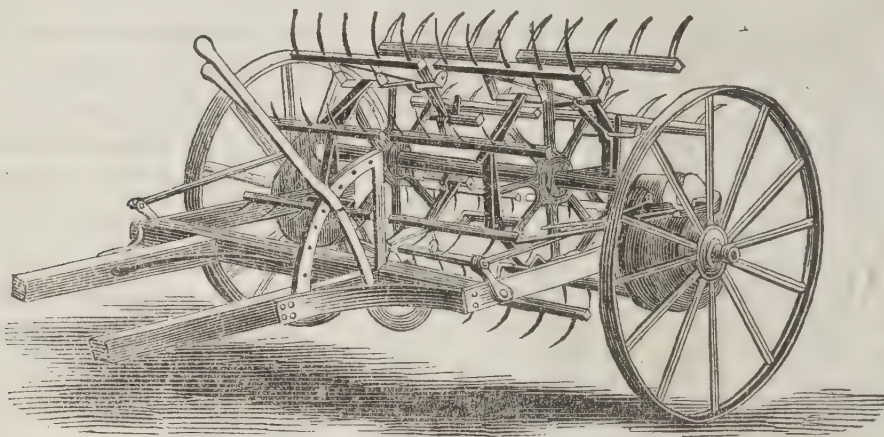
Two Horse Powers. Enquire for this machine if you wish to purchase, and examine it *then* for *yourself*. This is the best advice we can give.

Relative expenses of an Eight Horse-Power Thrashing Machine and a Two Horse-Power Paige's Thrashing and Cleansing Machine, each Thrashing the same number of bushels:—

Eight Horses at 50 cents,.....	\$4 00
Board for ditto, 25	2 00
Ten Men, at 62½	6 25
Board for ditto 25	2 50
Fanning 200 bush., 1½	3 00
	<hr/>
	\$17 75

Two Horses, at 50 cents,	\$1 00
Board for ditto 25	0 50
Five Men at 62½	3 12½
Board for ditto 25	1 25
	<hr/>
	\$5 87
Balance in favor of 2 horses,.....	11 88

McCORMICK'S REAPING AND MOWING MACHINE.—The *Chicago Journal* states that Mr. McCormick has sent out five hundred and eighty-one Reapers and Mowing machines from that city, the present season. One was sent to Germany, one to Alabama, one hundred to "the Jerseys," and one to El Dorado.



SMITH'S DOUBLE-ACTION HAY-MAKER.

We have been prevented giving at an earlier and more seasonable period the above machine, with some excellent practical remarks from a correspondent of the *Cultivator*, on the subject of Hay-making.

The hay spreading, or, as it is sometimes called, "tedding" machine, the latest and most improved form is represented in the above cut, has been in use in England for a number of years, and its diffusion over the country has been uninterruptedly progressing. It is drawn by one horse, and by means of the iron teeth attached to a revolving double iron cylinder, grass in the swathe or in windrows, is rapidly and evenly shaken abroad, in a manner far more effectual than by hand. There are several varieties of hay-making machines in use; the first was invented, we believe, by a Mr. Salmon, of Woburn, as far back as 1816. There has been nothing introduced that can compare with this useful implement in securing the greatest economy of time, labor and weather, in the important process of making hay. The price is about £12 or £14 sterling. The Horse-rake, of which we have some good and very economical specimens on this side of the Atlantic is its necessary appendage. Indeed, the latter article is to us of greater importance, as we seldom experience a tithe of the difficulty in making hay, arising from the dryness of our climate, that they do in the British Islands.

HAY AND FODDER—CUTTING AND CURING.

It may be safely averred that there is not a single operation on a farm that cannot be, and that ought not to be conducted upon scientific principles. Hence the utility, the necessity, of a scientific education of farmers. If the remark be true of farm operations generally, it is more especially so of the subject of hay-making. In this we require a knowledge of vegetable physiology, of chemistry, of pharmacy. Vegetable physiology will teach us the nature and functions of the various organs, and parts and juices of the plants with which we have to do; chemistry will teach us the theory, and pharmacy the art, of curing and saving the article in the best manner. There is no doubt that a very large portion of the nutritive matter of hay, and all kinds of fodder, is lost by a want of knowledge of this kind. The writer of this has never seen a hay-field at *haying time*, that he was not forcibly impressed with this truth. To illustrate this subject—suppose a pharmacist, the Shakers, for example, were to gather their medical herbs, and cure them, and house them in the same way that hay and fodder are usually gathered, cured, and saved—what, let us ask, would they be worth? Gathered at very improper seasons, cured in such a manner as to ferment and evaporate all their intrinsic virtues, and at last housed in a place, and in a condition, to make assurance of its destruction "doubly sure," it may well be conceived they would not be worth much. There are certain rules to be observed in this, as in all things, to attain the highest degree of perfection. Every kind of hay and fodder will be good or good for nothing, according to the degree of attention to these rules. The grass should be allowed to attain the highest degree of perfection before it is cut, and that degree is found to be at the time of *flowering* or blooming, just before the seed begins to form.

It being a *herbaceous* plant, the whole natural object of it is to make seed, and all its juices are, at the time of flowering, in their richest state. This is the time to cut it. If cut before this time, the juices are imperfect, and the fibrous matter immature; and if delayed beyond this time, more or less of the richness of these juices is expended in making the seed. If the seed is allowed to become *ripe*, the hay is comparatively worthless. We never saw a load of hay in the market for sale, that did not exhibit unequivocal signs of having had a very large portion of its rich qualities exhausted, either before it was cut, or in curing. When it is understood, that if allowed to ripen seed perfectly, the grass loses all its rich juices, and becomes mere dry straw—woody fibre, a little silicate of potash, and a very trifling quantity of vegetable extractive matter, the importance of cutting it at the right time will be apparent.

And here it is proper to mention another error of almost, if not quite equal importance. It is that of mixing different kinds of grass together. There are scarcely any two grasses that flower at the same time, exactly, and if two be mixed that flower at different times, one or the other will be greatly deteriorated by being cut too soon or too late. All grasses should, therefore, be kept in distinct meadows.

The curing process is, however, of much the most importance. No matter at what times the grass be cut, if it be not properly cured, the hay will be worthless, in proportion to this imperfection. Two tons of hay shall be taken from the same field, the one cured properly, the other carelessly—and the one shall be worth twenty dollars, while the other will be dear at any price, except for mere straw. Let us descend to particulars, for the subject is sufficiently important to authorise it. Nearly the whole nutritious properties of the hay are in a fluid, or semi-fluid state, highly susceptible of fermentation; and if fermentation takes place, they will be immediately dissipated in vapor. The object to be attained is to cure the hay, by evaporating the *water* only, of these juices, leaving the saccharine and other principles in a solid state in the body of the grass. But if the juices of the grass be allowed to ferment, then all these principles are rapidly changed, and pass off with the water in vapor. The usual method of curing hay, especially in the middle States, permits the green cut hay to lay in masses till it gets more or less heated, especially the under portion of it. This heat is produced by fermentation. We usually see the hay in the swathe till the next day, and then it is merely turned over, and even that very *carefully*. The underside will then be found to be very warm. Now, all this is wrong. The hay should be shaken up lightly, and loosely, so that none of it will lay in compact masses, and that the air may pass freely through it. It should be gathered into winrows as late as possible in the evening, and these should be well opened and turned, and loosened, early in the morning, so as to avoid spontaneous fermentation. If the weather be fair, the hay cut yesterday will be fit for cocking this afternoon, but it is not ready for housing or stacking. A great error is often committed in cocking hay, in allowing it to remain in these small stacks too long. When cocked, the hay is merely wilted, not cured, and if allowed to remain in cocks, will ferment there. They should be opened and spread about, and re-cocked several times before being permanently stacked or housed. Shaking hay about has a great effect in curing it, much more than is supposed. It exposes it to fresh air which carries off the water, and the oftener it is shaken up, the sooner and better it will be cured. Many object to shaking up the hay while the dew is on it in the morning. This is an error. A good shaking at that time, will effectually dry it.

BOOK NOTICES.

A RETROSPECTIVE GLANCE AT THE PROGRESSIVE STATE OF THE NATURAL HISTORY SOCIETY OF MONTREAL, being a Lecture delivered before the Society, March 31st., 1852, by Major R. Lachlan. Published by J. C. Becket, Montreal, at the desire of the Society.

This is an interesting lecture; embracing the rise and history of the Institution, in which it was delivered. The Montreal Society, like most of its allies, does not appear to have run an uninterrupted course of prosperity; but it has doubtless exerted no small influence for good, in awakening attention to the many interesting and useful objects of science, which it seeks to promote. Major Lachlan's lecture does not easily admit of extracts, even did our space permit. It must be read as a whole; a task that will be amply compensated by such as feel interest in the prosperity of popular scientific institutions, and the social and intellectual improvement of society; and we are happy to hear that the Major's praiseworthy exertions have already, in this instance, been attended with considerable success.

THE ANGLICAN AMERICAN MAGAZINE,—Monthly, \$3 per annum. Toronto: T. Maclear.

We have only room just to mention the appearance of the second number of this exceedingly well got up periodical, which, judging from the first number, bids fair to become popular and useful among all classes of the community. Our readers should order it and judge of its merits for themselves.

WATER FROZEN BY BOILING.—The following beautiful experiment may easily be performed by any one having an air-pump, and cannot fail being exceedingly interesting to those who take delight in the science of chemistry. Take a small thin glass jar, fill it half full of good ether, then place it within another jar half filled with water. Let this be then placed under the receiver of an air-pump; and as soon as the air is exhausted, the ether will boil and the water will freeze. The reason is that when the pressure of the atmosphere is removed by the air-pump from the surface of the ether, its own latent caloric occasions its expansion, and absorbing caloric from the water, it becomes converted into gas; and the water having now lost all its caloric of fluidity is converted into ice.

PEAT CHARCOAL IN THE UNITED STATES.—In the agricultural section of the report issued from the United States Patent-office, we find the following testimony to the merits of peat charcoal, given by an intelligent farmer, S. B. Beckett, of Portland:—"Pulverised peat charcoal (a new article) I am disposed to believe will be found to be a most excellent fertiliser, especially composted with other manures. It is a perfect deodorizer, rendering human excreta and the most offensive offal entirely scentless, as I have ascertained from frequent experiments. Hence its discovery will prove of great service to the world in a sanitary point of view, as well as for its fertilising qualities; and I am happy to add, that a large manufactory of the article is just going into operation in our vicinity."—*The Artizan*.

IMPROVED BREEDS OF CATTLE.

To the Editor of the Canadian Agriculturist.

Sir,—It was not my intention to trouble you again upon the cattle question; but from circumstances that have occurred I feel induced to write you.

I will take your advice, (I wish it had been given and acted upon previous to your last number,) write briefly, and avoid offensive personal-ity. Mr. Parsons, in your July number of 1851, in its leading article states, you had satisfactorily answered my query, by saying that Durham cattle deserved a preference, because they were more numerous. I will prove they are also the most numerous in England; and it shall be a bold man who will contend they are more suited for the climate and pastures of Canada than England. I will state from the *Agriculturist* the number of cattle exhibited at the last Agricultural Show, at Windsor,—

Short Horns, Bulls, Cows, and Heifers,....	176
Herefords, do do do	41
Devons, do do do	74

These are the old breeds, each of which are allowed the same grant of money. Now, Sir, do you think if a preference was shown to the Short Horns because they are the larger quantity, the breeders of Herefords and Devons would be at the trouble and expense of exhibiting their cattle? I see no account in the *Agriculturist*, of the relative quantity of cattle at the Brockville and Rochester Shows; I must therefore refer to the *Colonist* and the *Genesee Farmer*: the former paper says, "cattle, nothing extraordinary;" "a number of fine Devonshires, and these seemed to be getting greater favorites with the Farmers than the Durhams, which did not seem to be so much prized as formerly."—The *Genesee Farmer* tells us there were 700 head of cattle at Rochester, more than half of which were Devons! I account for the increase of this breed from the farmers in New York State having paid great attention to the Dairy. There are some superior Durhams and Herefords bred in that State; but do you suppose the breeders of them would send their stock again for competition if the managers gave a preference to Devons because they were the greater number?

The Short Horns have quite enough favor in this Province by allowing grades of all breeds to be shewn together. Judges, in my humble opinion, do not generally take into consideration the cost of feeding a large animal. It appears that in the coming Show, at Toronto, the Short Horn class has 16 more prizes than Herefords, Devons, or Ayrshires: the latter are not allowed awards, in England, anything equal to the older breeds; but I have no doubt they will be found

a valuable Stock here, and worthy of as much encouragement as Durhams. It must be borne in mind, the greater part of the farmers in Canada are such by accident, scarcely knowing how to make a good fallow, or a proper rotation of crops, much less the properties of the different breeds of cattle and sheep. The time was that farmers ought, the time is that farmers must, if they wish to prosper, attend more to the breeding and management of Stock. I therefore think Mr. Parsons' letter, in your widely read publication, likely to do harm. This gentleman pleads specially—assumes much, but proves nothing more than that you had given me my *quietus* in a brief editorial notice. Mr. Sotham may not have been very courteous to Mr. Parsons, but when it is considered Mr. P. endeavored to disparage a breed of animals, second to none in Great Britain, and which have been patronized and imported by the former, some allowance may be made for that. I do hope the Hereford breed may be more known in this country: I can only say I have seen better grade oxen from a Hereford Bull the property of Mr. Wm. Puddicombe, than I ever did either of Durham or Devon.—I hope one of your correspondents will ask why Down Sheep are to have more premiums than Leicester's? There can be no question but the Directors wish to act for the best interests of all, but they may be injudiciously advised.

I observe our worthy and talented Secretary, Mr. Harland, states, that the sheep about Guelph are much deteriorated by breeding from Down and Leicesters. It will be remembered in my last letter I said it would be as inexpedient to breed from Durham and Native cattle, after the first cross, as half-bred Down and Leicester sheep: and I have no doubt when Mr. Harland favors us with another essay, he will say we have some fine thorough-bred Durhams in the neighborhood; but by an injudicious system in breeding from grades, especially grade bulls,—a great portion of our cattle are neither fit for the dairy, yoke, nor grazier.

Yours, dear sir,

Very truly,

DANIEL TYE.

Wilmot, July 9, 1851.

[The principle on which the Directors have hitherto offered more prizes in the Durham Class than any other, viz., their much superior numbers and consequently greater competition, is one of those many subjects which admit of a difference of opinion. In the premium list for the present year, 40 prizes are offered in the Durham class, and 24 in the classes of Devons, Herefords, and Ayrshires respectively. The

difference is certainly great; but so has been the relative numbers of the breeds at our previous Exhibitions, as the following table, compiled from the Secretary's books, shows.

• Total number of animals exhibited:—

Durhams. Devons. Ayrshire. Hereford.

Kingston, 1849,... 54 9 12 0

Niagara, 1850,... 65 18 18 0

Brockville, 1851,.. 40 28 28 0

The difference with respect to Leicester and Southdown sheep, alluded to by our correspondent, was an error in the first impression of the Prize list, as published in the *Agriculturist*, and has been subsequently corrected.

We like much the spirit of candour which pervades Mr. Tye's communication, and trust it will give a better tone to the manner of conducting this controversy.

EXPERIMENTAL AGRICULTURE.

(*To the Editor of the Agriculturist.*)

SIR,—By the permission of Capt. W. Rhodes. President of the Quebec Agricultural Society, and a Director of the Lower Canada Agricultural Society, I have much pleasure in laying before you his very interesting statement.

I visited the farm with a view to observe the result of some experiments with the refuse lime and ammoniacal liquor of Gas Works. The use of these fertilizers has been highly spoken of by scientific and practical agriculturists, both in this country and in Europe. The difference in height and color between oats that had been top-dressed with the liquor and those which had not was surprising. Potatoes to which it had been applied were met in the drills, whilst those that received none, were pale and stunted. Its effect on grass was very beneficial.

The land, as is said, can never grow heavy crops, except of grass. This is uniformly the case where soil principally consists of argillite, or disintegrated clay—slate or shale. Cape Diamond, on which Quebec is built, is a mass of this rock, having as its concomitants, at short distances, a blue limestone fit for burning, and a highly crystalline variety well adapted for building.

A great difference in the texture and mechanical composition of soils is exhibited here in many acres.

I will reserve the details of the method for mixing the compost and the use of the liquid, with other matters, for a subsequent communication.

I am, respectfully yours,

A. KIRKWOOD.

Quebec, July 13th, 1852.

Benmore, July 12th, 1852.

SIR,—With reference to the queries enclosed—Four years ago my farm, 60 acres, was able

to feed two cows and two horses, and nothing else; the land was then either in wood or swamp in fact uncultivated: we now feed four horses and eleven head of cattle, besides grazing during the summer six pigs; of my farm about seven acres still remain uncultivated. My land being a poor shale, can never grow heavy crops except of grass. The compost cost me per load ready to deliver to the land, about one shilling. I do not pay for it more than six pence per load, because I employ my own horses in Winter, when there is nothing for them to do; but valuing their labor at five shillings per diem, it would cost one shilling the load. Manure from town, when ready to go on the land, costs at least 5s. per load, and the question I have to determine is whether five loads of compost are equal or superior to one load of manure? A top-dressing of 50 loads of compost, when compared with ten loads of manure speaks for itself. All that can be done by Farmers in Lower Canada is to increase the manure heaps. I generally make about 600 loads of compost or manure; this must tell on a small farm in a few years; the Peat does not absolutely require gas, lime and gas liquor.—I use them because it is the cheapest stuff I can buy. The Peat *must* be turned over at least once during the course of the summer, or else you cannot use it that year.

Clearing the land you allude to, which was very untractable, being full of green roots and boulder stones, also very wet, cost me about £6 per acre for clearing and grubbing, and £7 an acre for draining, the drains were 20 feet apart, four feet deep, and eighteen inches of broken stones are placed over the pipes. I place stones over my pipes because they are on the surface, it is both better and more convenient for me to dispose of them this way, — I say better because the drains draw the water away from the surface so much quicker; if I had not stones, I should place branches over the pipes. I place a few ferns over them to prevent the stones injuring or cracking the pipes when they are being laid. The piece of land in question will be very fine, at present it is growing a fair crop, but nothing to what it will grow when it feels the effect of cultivation. No price can be placed on the first ploughing of land full of green roots and stones, if you are lucky, by doing a little bit at a time you may get it finished, at about four dollars the acre. No plough could well have stood such work except one of iron, we broke a wooden plough all to pieces. Old oxen and old ploughmen and a very strong new iron plough ought to have been used. I use horses as there are no oxen in my neighbourhood.

Inch pipes cost on board ship in England four dollars the thousand feet, and the price varies; this year the pipes are much cheaper. Six dollars a thousand would pay well to a merchant at Quebec. I have never seen the one inch pipe laid down at such distances and for such a length (two acres) full of water. I, therefore, conclude one such is quite sufficient. I have watched my pipes now for two summers. My farm is situated in a Government Seignior, the cost of purchase placing it in free and common soccage amounted

to £25 per acre, to this I add £15 per acre for fencing, grubbing, road making, draining, and the cost of 3,000 loads of compost which I have spread over it.

I have been offered £100 an acre for some of my land, and I value my farm at £50 an acre,—but I would not take that for it, even if I wanted to sell

Land such as mine was, can be bought for £3 an acre; and can be put, including buildings, into equally good order for about £20 an acre. On such a farm a man could pay a rent of £1 an acre and prosper. My land cost more money in the first instance, owing to its being situated on the banks of the St. Lawrence near Quebec. On my farm we live well and pay our expenses; but the profit, if any, is small; the convenience, comfort, and economy of a farm, are, however, great.

A well conducted Farm, near Quebec, is of advantage to a gentleman, so long as he can consume all he produces; but when he is obliged to send his produce to market, the expenses take away the profit.

Your Obedient Serv't,
W. RHODES.

Mr. A. KIRKWOOD.

[We are obliged to Mr. Kirkwood for the above interesting communication, and shall be glad to hear from him again. Captain Rhode's farming must operate beneficially as an example in his neighborhood. Inch pipes for draining are considered large enough in England; but when any considerable quantity of water has to be conveyed away, a larger diameter would be necessary. Importing draining pipes from England reads somewhat strange to us Upper Canadians. We hope soon to see everywhere, proper machines in operation for producing this important article, at the lowest cost.]

REAPING AND MOWING MACHINES.

We have much pleasure in being able to state that *Hussey's Reaper* is being manufactured in Canada, by Mr. John Helm of Port Hope, who has them for sale, embracing all the improvements effected during the last two years. *Hussey's Reaper* has now taken a first rate position in England; subjoined is an extract from a recent English paper in reference thereto. We also learn that Mr. Helm is manufacturing *Ketchum's Mowing Machine*, an article of almost indispensable importance, and we take the liberty of publishing a letter on the trial of the Implement, which we received a few days since from Mr. John Wade, who, as many of our readers well know, is an experienced judge in such matters.

HAMILTON GARDENS,
Port Hope, July 5th, 1852.

DEAR SIR:

I have been trying Ketchum's Mowing Machine to-day, and have much pleasure in saying it works admirably. I am cutting clover very

heavy and much laid down, consequently have to cut it one way and return empty, which is a loss of half the time; but even then I can cut five or six acres a day. You are aware that laid down clover is very bad to mow, but the machine cuts it as level as a lawn, when you meet it. Mr. Helm of Port Hope is making them, and has started three already, and has three or four more bespoke. Ketchum's establishment is in Buffalo, should any of your friends be enquiring, and they can be obtained there any time—price \$100 at the factory; Helm sells his at the same price on this side, and of course duty, freight, &c., is saved, but he cannot get up this season any more than are engaged in time for this year's work. I assure you I feel quite delighted that it operates so well, for mowers are worse to get this season than ever I knew them to be.

I remain, dear sir,

Yours, truly,

JOHN WADE.

Mr. George Buckland.

HUSSEY'S AMERICAN CHAMPION REAPING MACHINE.—The advantages to agriculture by the use of this machine have again been exemplified. On Thursday last, the 27th ult., a "Reaper" from the well known establishment of Mr. Wm. Crosskill, iron works, Beverly (and under the superintendence of Mr. T. W. Naylor), was exhibited before a small party of influential agriculturists, upon the farm of Mr. Richard Scott, at Ranskill. The crop upon which the machine was tested was a piece of rye standing about 3 feet 6 inches high, a part of which had been cut green for horses, and the remaining part being in the same green state caused a difficulty which some parties thought would be fatal to the experiment, but those impressions soon vanished. The "Reaper" was quickly in readiness and started. It progressed in such a manner as to bid defiance to all the impediments which had presented themselves, and proceeded without any difficulty, cutting down the whole of the crop remaining in an efficient manner; the stubble was left perfectly even; and the rapidity with which the corn fell before the effective knives of the "Champion" caused much astonishment and satisfaction to the agriculturists present. After this experiment Mr. N. was requested to try it upon clover, which was immediately acceded to, and the machine was conveyed to an adjoining field. The crop, from the late and unfavorable season, did not present that amount of resistance to the knives which is necessary for its effectiveness. One portion, however, rather stronger than the rest, was selected, and the machine proceeded upon its course without the least impediment, cutting down the clover in a speedy and effective manner, and quite close to the ground. The most perfect satisfaction was expressed by the agriculturists present, with this, as well as the former experiment. Arrangements are in progress for a public trial in the neighbourhood, of which we shall be able to give our agricultural readers due notice, and we have but little doubt it will meet that patronage which the importance of the machine deserves.—*Doncaster Gazette*.

NEAT CATTLE.

From Lathrop's Farmers' Library.

HOOF AIL.—Cause of the disease is not well known. The feet become diseased, and then they are frozen during the course of the winter, after which they are of no value except for their skins. Feeding them with plants of rich food, and keeping them well littered in warm stables, is thought to be the most profitable and effectual method of avoiding this disorder.

HORN DISTEMPER, subjects them to a wasting of the pith of the horn. It is sometimes in one horn only, and sometimes in both. Indications of the disease are coldness of the horn, dullness of the eyes, sluggishness, want of appetite, and a disposition to lie down. Where the brain is affected, the animal will toss its head, groan, and exhibit indications of great pain. *Cure*: bore a hole with a small gimlet in the lower side of the horn, about an inch from the head, and the corrupted matter in the horn will run out. If this does not complete the cure, Mr. Dean directs that the horn have a mixture of rum, honey, myrrh, and aloes thrown into it with a syringe; and that this be repeated till a cure be effected.

TAIL SICKNESS.—Cause, generally poor keeping. The cure is effected by cutting off a small piece of the tail, which will be attended with a small discharge of blood; or when the hollow part is near the end, cut a slit in it one or two inches long and this will effect a cure.

GRIPES OR CHOLIC.—When attacked with it, they lie down and rise up incessantly, and stick their horns against any object that presents. It is attended with either costiveness or scouring. In the former case, they are to be treated with purgatives, and in the latter, with astringents. To stop the purging, give them half a pint of olive oil sweetened with sugar; or a quart of ale, mixed with a few drops of laudanum, and two or three ounces of oil of sweet almonds. To promote purging, give them five or six drachms of fine Barbadoes' aloes, and half a pint of brandy, mixed with two quarts of water gruel, in a lukewarm state. In either case, speedy attention to the beast is necessary, in order to prevent an inflammation of the intestines, which must prove fatal.

SCOURING SYMPTOMS.—Frequent discharge of slimy excrement, loss of appetite, loss of flesh, increasing paleness of the eyes, and general debility. *Cure*: The beast should be immediately housed, and put to dry food; and this in the early stage of the disease will generally effect a cure. Should this fail, it is directed by the same author to boil a pound of mutton suet in three quarts of milk, till the former is dissolved, and give it to the beast in a lukewarm state; or in obstinate cases, boil half a pound of powdered chalk in two quarts of water, till it is reduced to three pints; add four ounces of harts-horn shavings, one of cassia, and stir the whole together; when cold, add a pint of lime water and two drachms of tincture of opium; keep the whole in a corked bottle, and after shaking it before using, give one or two horns full two or

three times a day, as the nature of the case may require. Sometimes, however, this disease proves incurable.

HOVEN.—Occasioned by eating too much when turned into rich pastures, by swallowing potatoes, or other roots without sufficient chewing, and to other causes. The stomach of the animal becomes distended with wind, and if a vent for this cannot be afforded, the beast must die. *Remedy.*—Open a hole with a sharp pointed knife, with a blade three or four inches long, between the hip and short ribs, where the swelling rises highest, and insert a small tube in the orifice, till the wind ceases to be troublesome. The wound will soon heal up again. Mr. Young recommends for curing the complaint, to take three-fourths of a pint of olive oil, and a pint of melted butter or hog's lard, and pour this mixture down the throat of the beast; and if no favourable change be produced in a quarter of an hour, repeat the dose. For sheep, about a gill should in like manner be given, and the dose repeated if necessary. This, he says, will not fail of a cure in half an hour. To prevent this disorder, cattle should not be turned at first with empty stomachs into rich pastures; nor should they be allowed to feed on potatoes, and some other roots, without their first being cut into pieces.

STEAM FOR AGRICULTURAL PURPOSES.

It is somewhat difficult to estimate the power of steam-engines. They are usually classed by their horse power, as four-horse or six-horse engines. It is a better way, however, to state the diameter of the cylinder. In England, a diameter of $10\frac{1}{4}$ inches is usually rated at 8 horses; in Scotland, with some of the best machinists, at 6 horses. Thus an eight-horse engine in England is only rated at six horses in Scotland. The price of a moveable steam-engine of eight-horse English, 6 Scotch, is about £240. In Scotland a 4 horse fixed high pressure engine can be obtained for about £60, or one of 10 inches diameter (or 6 Scotch) for £80. Thus the original expense of the portable and fixed engine is widely different, the one being *three times* the other. During a lease a fixed high pressure will cost almost nothing for repairs, if properly attended to, and will at the end be worth more than half price. In the portable engine the form of boiler is extremely liable to accidents, and the whole machine often requires repairs. From the construction of the boiler in particular, these repairs must necessarily be expensive, and few of these portable engines will be serviceable in ten years. Upon railways the repairs and renewals of the engines form a serious item in the working expenses, and the boiler—the essential part in these portable engines being upon the same principle—is liable to the same wear and tear. When a portable engine is placed in a field, of course the water and coal must be brought to the engine. In a fixed engine the well for the water is made at the time of erecting the engine, and the coals are put into a coal-house near the engine—of course they have to be drawn from the coal hill, but there is

no necessity for carting the water to a fixed engine. In our opinion the disadvantages far more than counterbalance any advantages which portable engines may possess over fixed engines.—We may point out a difference greatly in favour of our fixed engine, but more appreciable, perhaps by a practical engineer. In the moveable engines, a high pressure is invariably used, to compensate for the smallness of their cylinder, generally not under 50lbs to the inch, while in the fixed, it seldom if ever exceeds 30, and is generally about 25. The risk of accident in the former is thus increased, and above all, the tear and wear of the boiler. If portable engines could once be employed as the common motive power of the farm, the case would, of course be altogether different. At present, however, there can be no hesitation in giving the first place to the fixed engine for thrashing. It is worthy of remark that in almost every other case where steam power can be applied in a fixed form, it is always employed.—*North British Agriculturist*.

THE GALWAY CATTLE SHOW.

We learn from our excellent cotemporary, *The Irish Farmers' Gazette*, that an extensive exhibition of Agricultural products is about to take place in this part of Ireland. The premium list is liberal and comprehensive, particularly as regards Cattle, and a keen competition is expected both from England and Scotland. The following remarks of the *Gazette*, will be perused with interest by many of our readers:—

“That the Galway agricultural gathering will create considerable interest, not only in Ireland, but in England and Scotland also, may be surely calculated upon, not only on account of the merit of the show itself, but because the season of the year will be admirably adapted to show, in luxuriance and grandeur, a large tract of the most picturesque scenery which can be well met with—we allude to the scenery of Connemara. The cheap trips furnished by the railways will enable tourists to run down to Galway to see the agricultural gathering in August, and, in a few days more, to view the romantic, the wild, and the beautiful scenery of the highlands and Ireland; while, to the tenantry of England and Scotland who are looking out for better land than they presently possess, at half the rent they at present pay, the railway to Galway, and the very cheap car travelling of the country, will enable such, in the course of ten days, to examine many thousand acres of land which are well worthy of their careful inspection. Now is the time for the British tenantry to take farms in Ireland—to invest their capital with a certainty of a good return. The country is quiet, agricultural enterprise is on the increase—the habits of the laborers are improving—rents are not the half of what is paid for equal quality of ground in England—and, though last, not least, local markets are as good throughout Ireland, in the average, as they are in Britain, for the best paying portion of agri-

cultural produce. We hope—we think, the Galway show will tend greatly to introduce increased spirit and agricultural improvement in the west of Ireland—namely, by inviting Scotch and English farmers over to see and accept the great natural capabilities of this highly improvable country.”

STRAW AS A COVERING.

Clean straw is an excellent covering for many things; thousands on thousands of sea kale in frames or under hoops have no other blanching material; and how clean they grow in it! Rhubarb, in winter forcing and early spring, grows beautifully pinky. It is well known that early spring frosts destroy Rhubarb; but if a six inch layer of straw is put on every crown, as the heads put up, they raise the straw with them, and it not only gives the stalks a better colour, and makes them less “stringy,” but it keeps the leaves from growing too large. No wind will blow it off, nor will the most intense frost injure the plants. Straw should not be looked on as a mere litter; it is as good as a frame upon a large scale. What sort of eatable strawberries would we have without straw? In summer, every crop, such as gooseberries, currants, and many other things, should have the protection of straw, which keeps the sun from drying up the surface, and the surface roots damp and cool, while all weeds are kept down. Market gardeners use it for their frames—it matters not whether for cucumbers, melons, or potatoes, straw is their covering—and their crops are more secure than when “protected” by a thin mat. But some may object to the use of straw, on account of the litter it makes in a garden; but if any of those who object to its use for this reason, will just take a peep into Covent Garden market at any season, they cannot fail to be struck with the quality of the produce, in the raising of which straw plays an important part. Straw is also the best of all manures for a strong retentive soil, when it is dug in fresh, as it decays and leaves innumerable worm-like holes which act as drains for the roots.—*English Paper*.

SCIENCE AND AGRICULTURE.

The following extract from the Report of the Council of the *Royal Agricultural Society of England*, at their general meeting in May last, will be read with interest:

“The Chemical investigations instituted by the Society are in a state of active and favorable progress in the laboratory of Professor Way, the Consulting Chemist to the Society; who has already this season delivered before the members two interesting lectures on the peculiar agency of certain soils in promoting the supply of manuring matter as food to plants, and on the light thrown by the agricultural principles established more than a century ago by the celebrated Jethro Tull, on practical results obtained at the present day under certain conditions of soil and culture. Mr. Trimmer, the author of Society's prize essay

on agricultural geology, has also favored the members with a lecture on the geological distribution of soils throughout the country; a subject of much practical importance to the farmer who is desirous at any time of transferring analogically the system of one district to another locality identical with it in the circumstance of soil; a result not always to be inferred from the ordinary geological maps, in which the rocks or subsoils are represented in their denuded state, and irrespectively of the actual drift or soil that may happen, from various causes, to rest upon their strata.

The Council are aware of the great caution required in the application of science to the practice of agriculture; and of the guarded manner in which any new or striking facts of cultivation ought to be enunciated, in order that the particular circumstances of their occurrence may be most clearly defined. These circumstances they conceive must be accurately understood by the farmer before he can safely transfer to his own locality a mode of management that may have been adopted with success elsewhere. Science, so called, can only mislead, when its quality is unsound, or its application erroneous; sound science, indeed, consisting only of principles derived immediately from facts; which principles, when duly applied to practice, constitute an art of any kind; and this art, whether that of agriculture or any other branch of industry, is only to be perfected by the application of improved principles, whether these be accidentally discovered or ascertained by direct investigation. The Council feel how much the modification or establishment of such principles of improvement depend on the extended practical observation and actual test of their members; and while they are most desirous on the one hand to aid in their legitimate development, they are most anxious on the other to prevent their hasty adoption. The really best practice in agriculture always includes as its prime mover the best science; but it is only by obtaining the distinct knowledge of such included science that the conditions can be ascertained under which the practice itself may be transferred successfully to other circumstances: and the Council, in endeavoring to carry out that union of "practice with science," which has become the well known motto of the Society, invite from its members such communications of successful instances of management or cultivation, as will either at once become models for adoption, or serve by comparison with other results, to modify the character and extent of the deductions to be drawn from them. With such practical aid, the Council feel assured that the Society will continue to proceed in its steady course of public usefulness, gradually developing those national objects for which it was originally established."

THE WEEVIL, &c.

SYDNEY, BELLEVILLE, July 13, 1852.

To the Editor of the Canadian Agriculturist:

DEAR SIR:—I send you a late head of Hutcheson wheat very much affected with the weevil—

a little orange maggot, from a fly blow deposited as I described in my report. They are numerous in this County in late wheat—*very* numerous in later, and *very, very* numerous in the latest. I should say that very probably one half (certainly one-third) of the whole wheat of this County is destroyed by this weevil. I saw the fly about the first of this month, almost forming a little cloud and proceeding *westward*. It will be in Murray and Sydenham this season, and will proceed westward from seven to nine miles each year. The only remedy I can perceive as yet is *very early* sowing on very early ground, well drained, of very early kinds of grain. I have four fields of wheat—in the *earliest* there is little or none except where there was aftergrowth, but it becomes worse in each field in proportion to its lateness either in whole or in spots. Perhaps through your valuable journal you will be able to hurry the farmers west of us in their preparations for wheat sowing, and thus do a world of good, as the progress of the weevil is as certain as the progress of time itself, and how great a scourge it is—few of our brother farmers in the west are aware. The Sole and Hutcheson wheat appear to be the earliest and will be ready for harvest with me and around me, on the 22nd of July, which is early for this season. I cannot say exactly *why* the earliest wheat is the safest but I daresay nature provides that the fly comes to its natural strength at the *usual* time for wheat to blossom—and if the wheat be *earlier than usual* the grain is too forward to nourish its deposit. This year the coldness of the season retarded the *animal* creation probably more than it did the *vegetable* creation, and this may be another reason why the fly was too late for early sown wheats.

"I do not mean to reply to Mr. Wade as he corroborates my opinion when he says 'the man who would go to the expense of procuring improved Stock without intending to keep them properly must be a fool.'" This is all I contend for. Let people grow more Turnips and Clover if they mean to have improved Cattle. I fear his Durhams would not be in good condition after a winter's "BROWZE" on Bass wood branches—with a fork full of dry straw at night and morning in a cold open yard as an auxiliary—our natives are so. Mr. Wade does not I think intend to discourage farmers from growing green crops and making more comfortable sheds and houses, all I contend for is that these improvements should be simultaneous with the introduction of the breeds called "improved"—but which are certainly not "improved" unless better fed and housed than our common cattle. If Mr. Wade be of a different opinion, by-and-by we shall not wonder to hear of a *second* Mr. Wade advising the *Habitués* to get rid of their *hardy* ponies and substitute *Bloods* before they have the extra hay, oats, stabling, &c., required for those "*improved* animals."

Yours, &c.,

WILLIAM HUTTON.

We received a subsequent communication from our respected correspondent, on the devastating

progress of the weevil, which we publish below. The scourge is evidently moving westward, and our readers will have time this season to adopt some of our correspondent's suggestions, with a view to prevention. The specimens sent us afford striking evidence of the destructive influence of this insect. We shall be happy to receive information on this subject from experienced parties residing in different localities.

BELLEVILLE, July 16, 1852.

DEAR SIR,—I send you three, what Botanists would call beautiful specimens of wheat affected with the weevil—two heads of Sole wheat late, not bearded, and one head of Hutcheson wheat, late and bearded.

Both of these kinds when *very early* are entirely free from it. You will perhaps be able to gather information and draw inferences that would escape me, when you see the plant in the diseased state. This insect is an awful scourge to our country, having destroyed many thousand pounds worth of wheat this season alone! I do not know of your having any other Eastern correspondent who would send them to you, but even if you have a thorough knowledge of the insect and its operations, I am sure you will excuse me, knowing my motives, and knowing that the *Agriculturist* is the Farmers' great channel for information.

Yours, very truly,

WILLIAM HUTTON.

To George Buckland, Esq.,
Sec., &c., &c.

PROVINCIAL EXHIBITION.

The Local Committee have commenced active operations, and the Mayor, as Chairman thereof, has issued a spirited address to the citizens of Toronto, urging the claims of the Association to pecuniary support, which it is confidently expected will be liberally responded to. The approaching Exhibition is expected far to exceed any of its predecessors, both as to the number of visitors and amount of stock and articles for competition.

The following Donations have been made to the funds of the Exhibition, and notified to the Secretary:—

	£	s.	d.
Corporation of Toronto,.....	200	0	0
County Council of York,.....	100	0	0
Agricultural Society of Middlesex,...	25	0	0
do Frontenac, Lennox and Addington,	25	0	0
do Oxford,	20	0	0
do Lanark and Renfrew,.....	10	0	0

ADELAIDE ACADEMY, TORONTO.

We have on several previous occasions borne our humble testimony to the excellence of this well conduct-

ed institution for the education of young ladies, in all the branches of a polite and useful education, under the able superintendence of Mr. & Mrs. Hurlburt, assisted by eminent teachers. Our space will only admit of the remark that the recent examination fully sustained the commendations we have made on previous occasions, and the whole educational staff seems to be in the most efficient condition. The next term will commence on the 1st of September.

GOVERNMENT AGRICULTURAL GRANTS.

The Secretary of the Board of Agriculture has been informed by the Provincial Secretary, that warrants have been ordered to be issued in favor of the respective Treasurers of the following societies, for the sum of £250 each. Essex and Lambton; Middlesex and Elgin; Oxford; Simcoe; Frontenac, Lennox and Addington; Leeds and Grenville; Kent; Welland and Lincoln; Wellington and Gray.

Affidavits have been received from the following Societies, and certificates relative thereto will be forwarded to the Government immediately:—Haldimand; Huron; Peterborough and Victoria; Northumberland and Durham.

Toronto, July 30, 1852.

SALE OF IMPROVED STOCK.

We beg to call the attention of our readers to Mr. Vail's advertisement on the last page. Those who are desirous of procuring first rate animals of the best Durham blood, should attend the sale. Mr. Vail's position as an importer and breeder of Short Horns, coupled with a high character for fair and honorable dealing, are too well known to require any commendation from us.

BOARD OF AGRICULTURE.

A meeting of the Members of the Board of Agriculture, will be held in this city on Saturday, August 14th, at 10 A. M.

By Order of the Chairman,

GEO. BUCKLAND, Sec.

Toronto, July 31st, 1852.

THE REAL PROSPERITY OF THE BEET ROOT SUGAR MANUFACTURE IN IRELAND, By W. K. Sullivan, Dublin 1852.

This interesting and well-written pamphlet has been placed in our hands by Mr. Commissioner WIDDER, to whom we have been previously indebted for several contributions of a similar kind. We hope to give some notice of this publication,—the latest on the Beet Sugar question,—in our next.

HORTICULTURE.

THE LANGUAGE OF FLOWERS.

(From the Gardeners' Record.)

In Eastern lands they talk in flowers,
And they tell in a garland their love and cares;
Each blossom that blooms in their garden bowers,
On its leaves a mystic language bears.

The rose is the sign of joy and love,
Young blushing love in its earliest dawn;
And the mildness that suits the gentle dove,
From the myrtle snowy flower is drawn.

Innocence dwells in the lily's bell,
Pure as the heart in its native heaven;
Fame's bright star, and glory's swell,
By the glossy leaf of the bay are given.

The silent, soft, and humble heart,
In the violet's hidden sweetness breathes;
And the tender soul that cannot part,
A twine of evergreen fondly wreathes.

The cypress that darkly shades the grave,
The sorrow that mourns its bitter lot;
And faith that a thousand ills can brave,
Speaks in thy blue leaves—Forget-me-not.
Then gather a wreath from the garden bowers,
And tell the wish of thy heart in flowers.

PERCIVAL.

PROTECTION OF APPLE TREES.

MR. EDITOR:—In my letter to you on the subject of protecting fruit trees from the depredations of mice, I mentioned that I would communicate to you the results of my experiment. The mice seem to have been exceedingly destructive this past winter, for I am acquainted with several persons who have lost four or five trees from this cause, and I have been told of one who has suffered to the extent of forty. On the 8th of April, which was as early as I could get at my trees this spring, I removed all the tarred covers, except from a few trees still surrounded by snow, which were uncovered a few days afterwards. The trees were *all* perfectly sound, the tar had penetrated through the canvas in only a few spots, so that any injury to the bark is impossible, the trees have now put out leaves, and are showing quantities of fruit. The garden had evidently been overrun with mice, and in a pit of cabbages, and another of Kohl Rabi, dozens were killed. Their holes or runs were traced up to the trunks of the trees in more than a dozen instances, but the tar was too much for them and they had turned back. The experiment therefore may be considered as perfectly successful; and, as the cloths are not injured, it is economical, it consumes no more time than the others, and in my opinion is much more to be relied on.—Might it not be employed to prevent the ravages of the peach grub,

the larva of *Egria Exitiosa* (a small moth) which in some parts of the country is found to be so exceedingly injurious?

I wish we could protect our plum trees as easily from the ravages of the curculio, or plum weevil, but unfortunately it does not appear that any one of the numerous contrivances proposed for the purpose are of the slightest use, at least in light sandy soils. Among the preventives which have been recommended may be mentioned the following:

1st. Dusting with Plaster of Paris (gypsum). This process has been tried by a correspondent of the *Horticulturist*, and pronounced excellent. I have found it utterly inefficient, and I believe others have been equally unsuccessful.

2nd. Sprinkling with a wash made with lime. This has been also proved to be ineffectual.

3rd. Sprinkling with a whitewash composed of lime and sulphur. This has been strongly recommended in the *Horticulturist*; and its proposer, from the success of his own trials, prognosticated valuable results. I was led to believe that this plan might be of advantage from the consideration that the sulphur being mixed with the lime must have caused the production of a quantity of sulphuret of calcium [varying in amount according to the length of time that the bodies were left in contact.] This compound has an exceedingly disagreeable smell, and seemed therefore likely to offend the olfactory nerves of the "Grand Turk." I accordingly tried it this spring, and have been miserably disappointed. According to directions, I syringed my trees at intervals of three days; after the second, no mark of the curculio was visible; the third syringing was a most complete one, so that every leaf, fruit and twig, was covered with the mixture. Three days afterwards, I could not find one single plum which did not bear the impress of the "Baby's nail."

4th. Paving underneath the trees. This plan I have not yet tried; it is a troublesome process, but more likely to succeed than some others, for it depends on the known habits of the insects, and not on the application of any poison or preventive which may arrest their approach. It has been observed that plum trees bending over water have borne large crops, and it seems very probable that if we could surround our plum trees with small tanks of water, we should secure the fruit. This plan, however, is one which could only be carried into effect by some wealthy amateurs in a most favourable situation. It is, however, worth trying.

Lastly. I will mention the employment of broods of chickens under each tree, a plan which may perhaps be a successful one, but

which is decidedly difficult of application when the number of trees to be protected becomes considerable. I think all gardeners will agree with me that *pigs* are equally objectionable. I have also tried the action of *assafœtida*, a substance whose abominable smell one would think sufficient to drive off the most determined insect; but I find my plums bitten by the *curculio* even when within half an inch of the *assafœtida* bag.

There is therefore one grand discovery reserved for future generations of gardeners, viz., a sure preventive for the *curculio* in all soils, whether clayey or sandy.

H. C.

Toronto, June 21st, 1852.

ORANGES.

Doubtless most of our readers are much better acquainted with the taste of this delicious fruit, than with the details of its history and growth.

Though the orange, lemon, lime, citron, &c., are natives of India and China, from whence they were introduced into Europe, they are, nevertheless, grown in great abundance in various parts of the world.

The orange-tree being a native of warm southern climates, it forms a prominent article of commerce from the southern to the more northern European nations. They are exported from Italy and Malta, as well as from the South of Spain and from Portugal, and also in large quantities from the Azores. The orange-tree affords not only a fruit of a very luscious and refreshing character, but is extremely prolific in its produce, which is manifest by the extreme cheapness with which they are sold in England, being sometimes much less than even our own apples and pears; which is the case at the present time when three to four in some of our large towns can be had for a penny; and many thousands of the poorer classes of our population earn a livelihood by the sale of them even at this rate. Thus it has become a peculiar blessing to us; for while it affords employment to vast numbers who might otherwise possibly be lacking the means of support, it offers a gratification within the reach of those whose means are limited; it is also a staple fruit with those whose tables groan under the more costly but less grateful products of other countries.—Oranges, as articles of diet, combine richness in flavour, abundance in quantity, cheapness in price and healthfulness in quality.

Oranges, as well as lemons, are imported in boxes and wrapped up separately in bits of paper, or slips of flag, or broad leaves, so as to prevent their coming in contact with one another. The duty upon oranges for home consumption in 1829, was £68,000 per annum. They are taxed at the rate of 2s. 6d. a box not exceeding 5,000 cubic inches. Each of those boxes contain about 500 oranges of the middling size, so that about 272,000,000 of this fruit were thus annually imported; allowing about one dozen per annum to

every individual of the population. Since that time no doubt the consumption has at least doubled. This extraordinary consumption of a fruit which is brought here from very distant parts of the world is the natural consequence of its rich and health-giving qualities, which fit it in a remarkable degree for being the universal fruit of commerce.

What pleasing thoughts and recollections flash across our minds while writing upon this subject. It carries us in imagination back over the sterner time of life to that happy, joyous period, when we anxiously waited the returning footsteps of our parents from the fair or the market; and our little feet and hearts danced with ecstasy as we peeped inquisitely underneath the cover of the reticule and saw the golden-coloured treasure. It was with those, too, that we commenced our experiments in natural philosophy, by compressing the skin or peel between our fingers, so as to force the inflammable oil which it contains into the fire, or candle-flame, and thereby causing an explosion. And even now we have a similar attachment to them: whoever thinks of having a party of friends around him to enjoy themselves without introducing those little foreign friends to minister to their pleasures? Nuts *may* be there, and apples too, and figs, but oranges are sure to be.

It is supposed that this fruit was introduced in the fourteenth century by the Arabs into Spain, "whose fruits of fragrance blush on every tree," and where are seen "the orange tints that gild the greenest bough." They are grown in the open air also at Nice, Genoa, and Naples; but at Florence and Milan, and often at Rome, they require the temporary protection of a shed. They are usually planted in boxes, and removed from the conservatory into the open air in summer, in France as well as in England. The orange blossom was at one period held in great esteem, and almost veneration, in our country; and even now it is; and, from its sweetness of smell, chasteness of construction, and delicacy of colour, deserves ever to be the cherished companion of the bride, in that interesting time of life when Hymen steps forth to heal the wound that Cupid has made; and to consummate the beautiful idea of "two souls with but a single thought, two hearts that beat like one;" nor is its beauty dimmed by being brought into contrast with the fresh and rosy blush of the bride. Since the introduction of the great variety of flowers from all countries, orange-ries, and fine specimens of orange and citron trees have been less in fashion, though more and more desirable on account of the combination of elegant verdure, the grateful odour of the flowers, and the rich appearance of the fruit. The first oranges, it is stated, were imported into England by Sir Walter Raleigh; and it is added that Sir Francis Carew, who married the niece of Sir Walter, planted their seeds, and they produced the orange trees at Beddington, in Surrey, of which Bishop Gibson, in his additions to "Camden's Britannia," speaks as having been there for a hundred years previous to 1695. But in reference to this, Professor Martyn observes, and reasonably so, that those trees having always produced fruit, they could not have been raised from

seeds, but they may have been brought from Portugal or Italy, where orange trees have been usually obtained, as early as the close of the sixteenth century. Some writers say they have been cultivated in England since 1492; and Mr. Loudon states, that, at the Wilderness, Kent, there are three trees in boxes, not surpassed by any trees so grown in Europe; and that, at Saltcombe, in Devonshire, there are, in a few gardens, orange trees, which have withstood the winter in the open air for upwards of a hundred years. The fruit of those trees is said to be as fine and as large as any imported from Portugal. At Hampton Court there are many orange trees, some of which are stated to be three hundred years old. When they are removed from the orangery to the open space, the air becomes freighted with a fragrance which adds no mean attraction to the otherwise delightful spot; and, when sitting under the boughs which bend beneath their golden load, to screen yourself from the warm, genial sunshine, you may almost imagine yourself transported to some tropical climate; this imagination being materially assisted by the surrounding beauties of the spot.

The author of "Vegetable Substances," in speaking of the country westward of the Rhone, where the Alps descend gradually by successive elevations from the high summits of Mont Blanc, Mont Rosa, and St. Bernard, to the sea, says:—"The vegetation there is at once luxuriant and choice. The finest bulbous flowers, the myrtle, the cactus, and many others, give more the air of the perpetual summer of the tropical countries, than is to be found, perhaps, in any other country of Europe,—certainly in any other of the same extent. But the glory of that delightful country is the orange tree, which, when full grown, attains the height of about twenty-five feet, and is graceful in all its parts. The trunk and older branches are of a delicate ash colour; the twigs of so soft and green, that they almost appear transparent; the leaves are moderately large, beautifully shaped, of a fine healthy green, and shining on the upper side, while the under one has a slight appearance of down. The flowers, which are in little bunches, and very graceful in their form, are, in the sweet oranges, of a delicate white, and in the more acid varieties of the family lightly marked with pink. Some plants have a more powerful odour than others, and are, for the moment, more rich; but there is a freshness in the aroma of an orange grove which never offends or cloy; and as the tree is at one and the same time in all the stages of its bearings, in the tender bud and full-blown blossom mingling in loveliness with the dear old brown leaves, with the embryo fruit just peeping out from underneath the foliage, and the rich round golden fruit, nodding a welcome to the hand to gather it, and the palate to partake of its refreshing juice. It is this peculiar character of the taste that renders it such an appropriate symbol of marriage; showing at once both the promise and the fulfilment of womanhood, and of those rewards of married love which give at once the charm of domestic life, the endearing bond of well-pledged hearts and the provision for the future of another and succeeding race to take their places. It is one of

those beauties in nature that scarcely knows a superior, even in the perfumes of Arabia, and the aromatic groves on the north of the Mediterranean, where bloom the Provence rose and tuberose, and blend their sweets with that of the orange."

One peculiarity of the orange is, that man may have it fresh in every region of the world, and at almost every season of the year. The aromatic oil and the rind preserve it from the effects both of heat and cold, and the acidity of the former renders it proof against the attacks of insects. It is true they rot, like other fruits; but not for a long time, if the rind is preserved from injury and they are kept from moisture, and so ventilated as to prevent fermentation. Most of the oranges intended for exportation, and which we get in this country, are gathered while they are quite green; for, if it be allowed to come to maturity, it would spoil before it reached a foreign climate. The gathering of oranges and lemons for the British market generally occupies from the commencement of October to the end of December. They are not fully ripe till the spring has commenced. It is a remarkable fact, that the orange-trees from which the fruit is gathered green bear plentifully every year; while those upon which the fruit is allowed to ripen afford abundant crops only on alternate years.

There are four distinct species of the orange genus: the lemon, or citron; the orange; the mandarin orange; and the shaddock; and of those there are many varieties. They are, even in the East, where they are natives, not a little capricious in their growth, the fruit and even the leaves frequently altering; so that it is not easy at all times to determine which is a distinct species and which only a variety.

Having dwelt so lengthily on oranges, we shall only briefly touch upon the other species of the genus.

The SHADDOCK is a native of China and the adjacent countries: it derives its specific name from having been first introduced into the West Indies, from China, by Captain Shaddock. In China it is called "sweet ball." The tree is of much larger growth than the orange; and the fruit varies from eight to twelve inches in circumference: there are many varieties; in some the pulp is white, in others it is almost red; some are sweet, and others acid. The proper way of propagating the Shaddock is by budding it, as it is done in China. But the planters in the West Indies, instead of doing this, have adopted the mode of rearing it from seed, and the consequence is, it is much degenerated; the fruit being very sour, and of little value.

THE LEMON.

The Lemon is a native of India, or that part of it situated beyond the Ganges. It was introduced into the West by those mighty Caliphs, who, from the heart of Southern Asia, extended their conquest to the foot of the Pyrennees. It being thus transplanted by the Arabs into every part of their vast empire where it would grow, was found by the Crusaders in Syria and Palestine towards the end of the eleventh century. It was introduced by them into Sicily and Italy,

though it is probable that at the same period it was already multiplied in Africa and Spain. The rind of the lemon is much smoother than that of the citron; the bark of the tree is also rougher; the leaves are oblong, of a pale green, with a winged stalk.

The LIME, or sour lemon, is a small fruit, much less than the citron or lemon, being from an inch to an inch and a-half in diameter. The tree is small and shrubby, and is not much cultivated in Europe. It is grown in great abundance in the West Indies, where it is a great favourite, because of its acid juice; it is drunk as a beverage, because of its cooling qualities. There is, also, a sweet lime, somewhat between the lemon and the sour lime.

THE CITRON.

This fruit, in its native state, is a thorny tree which grows about eight or ten feet high; its leaves are of a pale green; the flowers are white, and emit a very sweet fragrance. The fruit is oblong, about six inches in length, with a rough, yellow rind, the outer part of which contains a considerable quantity of highly aromatic and inflammable oil; the pulp is white and edible, but very acid. These are grown plentifully in Spain and Italy; but with artificial heat in winter, and with care generally it may be grown to perfection in England.

BEAUTY AND COMFORT OF A GARDEN.

The following extract from a recent and most charming work, entitled "RURAL HOURS," written by Miss COOPER, the daughter of the late celebrated novelist, cannot fail of being pleasurable to the reader. That gardening promotes health and domestic comfort, and is a powerful means of advancing the civilization of a people, cannot admit of a question; and it would be a happy thing if every child in the land were taught the principles upon which successful cultivation depends, and to form such observant habits of mind as would lead him to respect and love the simple and beautiful, although *inanimate*, works of God. A people trained from their infancy to reverence the true and the beautiful, in nature and art, would be provided with a safeguard against the too common practice of stealing from gardens, and the sheer barbarism of mutilating plants or trees:—

One always loves a garden; labour wears its pleasantest aspect there. From the first days of spring, to latest autumn, we move about among growing plants, gay flowers, and cheerful fruits; and there is some pretty change to note by the light of every sun. Even the narrowest cottage patch looks pleasantly to those who come and go along the highway; it is well to stop now and then when walking, and look over the paling of such little gardens, and note what is going on there.

Potatoes, cabbages and onions, are grown here by every family, as first requisites. Indian corn and cucumbers are also thought indispensable, for Americans of all classes eat as much maize as their Indian predecessors. And as for cucumbers, they are required at every meal of which a thorough-going Yankee partakes, either as salad in summer, or pickled in winter. There is usually a pumpkin-vine running about the corn hills, its large yellow flowers and golden fruit showing, as a matter of course, below the glossy leaves of the maize; a part of the fruit is made into pies, the rest goes to the cow or pig. Sometimes you find squashes, also, in these small gardens, with a few tomatoes, perhaps; but these last are difficult to raise here, on account of the occasional frosts of May.

Flowers are seldom forgotten in the cottage garden; the widest walk is lined with them, and there are others beneath the low windows of the house. You have rose-bushes, sun-flowers, and holly-hocks, as a matter of course; generally a cluster of pinks, bachelor's buttons, also, and a sweat pea, which is a great favourite; plenty of marigolds, a few poppies, large purple china asters, and a tuft of the lilac phlox. Such are the blossoms to be seen before most doors; and each is pretty in its own time and place; one has a long-standing regard for them all, including the homely sun-flower, which we should be sorry to miss from its old haunts. Then the scarlet flowering bean, so intimately connected with childish recollections of the hero Jack and his wonderful adventure, may still be seen flourishing in the cottage garden, and it would seem to have fallen from a pod of the identical plant celebrated in nursery rhyme, for it has a great inclination for climbing, which is generally encouraged by training it over a window. We do not hear, however, of any in these parts reaching the roof in a single night's growth. You must go to the new lands on the prairies for such marvels now-a-days. They tell a wonderful story of a cucumber vine somewhere beyond the great lakes, in the last "new settlement," probably; the seed having been sowed one evening in a good bit of soil, the farmer, going to his work next morning, found it not only out of the ground, but grown so much that he was curious to measure it; "he followed it to the end of his garden, over a fence, along an Indian trail, through an oak opening, and then seeing it stretch some distance beyond, he went back for his horse, but while he was saddling old Bald, the vine had so much the advantage of him that it reached the next clearing before he did; there he left it to go back to dinner, and how much farther it ran that day Ebenezer could not tell for certain."

We have no such wonders hereabouts; and even the ambitious bean seldom reaches higher than a low roof; nor is its growth always sufficiently luxuriant to shade the window, for it often shares that task with a morning-glory. The plan of these leafy blinds is a pretty one, but they are too often trained in stiff and straight lines; a poetical idea, *tiree a quatre epingles*. Frequently we see a cottage with a door in the

centre, and one window on each side, and vines trained over the sashes in this way, which gives it an odd look, like a house in green spectacles, as it were. When hop vines are used for screening the windows, which is often the case, the plant is not so easily restrained; and throwing out its luxuriant branches right and left, takes care of itself.

Currants are almost the only fruit seen in the smaller gardens of our neighbourhood; even gooseberries are not so general; both raspberries and strawberries grow wild here in such profusion that few persons cultivate them. Currants, by-the-by, both black and red, are also native plants; the black currant is by no means rare in this State, and very much resembles the varieties cultivated in gardens; the wild red currant is chiefly confined to the northern parts of the country, and it is precisely like that which we cultivate. Both purple and green gooseberries are also found wild in our woods.

It is often a matter of surprise and regret that fruit should not be more cultivated among us in gardens of all sizes; but the indifferent common cherry is almost the only fruit tree found here in cottage gardens. Even the farmers neglect cherries, and plums, and pears, surprisingly.

There is, unhappily, a very serious objection to cultivating fruit in our village gardens; fruit-stealing is a common crime in this part of the world; and the standard of principle on such subjects is as low as it well can be in our rural communities. Property of this kind is almost without protection among us; there are laws on the subject, but these are never enforced, and of course people are not willing to throw away money, and time, and thought, to raise fruit for those who might easily raise it for themselves, if they would take the pains to do so. There can be no doubt that this state of things is a serious obstacle to the cultivation of choice fruit in our villages; horticulture would be in a much higher condition here if it were not for this evil. But the impunity with which boys, and men, too, are allowed to commit thefts of this kind, is really a painful picture, for it must inevitably lead to increase a spirit of dishonesty throughout the community.

It is the same case with flowers. Many people seem to consider them as public property, though cultivated at private expense. It was but the other day that we saw a little girl, one of the village Sunday scholars, moreover, put her hand within the railing of a garden and break off several very fine plants, whose growth the owner had been watching with care and interest for many weeks, and which had just opened to reward his pains. Another instance of the same kind, but still more flagrant in degree, was observed a short time since: the offender was a full grown man, dressed in fine broadcloth to boot, and evidently a stranger; he passed before a pretty yard, gay with flowers, and unchecked by a single scruple of good manners, or good morals, proceeded to make up a handsome bouquet, without so much as saying, by your leave, to the owner; having selected the flowers most to his fancy, he arranged them tastefully, and

then walked off with a free and jaunty air, and an expression of satisfaction and self-complacency truly ridiculous under the circumstances. He had made up his nosegay with so much pains, eyed it so tenderly as he carried it before him, and moved along with such a very mincing and dainty manner, that he was probably on his way to present himself and his trophy to his sweetheart; and we can only hope that he met with just such a reception as was deserved by a man who had been committing petty larceny. As if to make the chapter complete, the very same afternoon, the village being full of strangers, we saw several young girls, elegantly flounced, put their hands through the railing of another garden, facing the street, and help themselves in the same easy manner to their neighbour's prettiest flowers; what would they have thought if some one had stepped up with a pair of scissors and cut half a yard from the ribbon on their hats, merely because it was pretty, and one had a fancy to it? Neither the little girl, nor the strangers in broadcloth and flowers, seem to have learned at common school, or at Sunday School, or at home, that respect for the pleasure of others is simple good manners, regard for the rights of others, and common honesty.

No one who had a flower border of his own would be likely to offend in this way; he would not do so unwittingly, at least; and if guilty of such an act, it would be premeditated pillaging. When people take pains to cultivate fruits and flowers themselves, they have some idea of their value, which can only be justly measured by the owner's regard for them. And then, moreover, gardening is a civilizing and improving occupation in itself; its influences are all beneficial; it usually makes people more industrious, and more amiable. Persuade a careless, indolent man to take an interest in his garden, and his reformation has begun. Let an idle woman honestly watch over her own flower-beds, and she will naturally become more active. There is always work to be done in a garden, some little job to be added to yesterday's task, without which it is incomplete; books may be closed with a mark where one left off, needlework may be thrown aside and resumed again; a sketch may be left half finished, a piece of music half practised; even attention to household matters may relax in some measure for a while; but regularity and method are constantly required, are absolutely indispensable, to the well-being of a garden. The occupation itself is so engaging, that one commences readily, and the interest increases so naturally, that no great share of perseverance is needed to continue the employment, and thus labour becomes a pleasure, and the dangerous habit of idleness is checked. Of all faults of character, there is not one, perhaps, depending so entirely upon habit as indolence; and nowhere can one learn a lesson of order and diligence more prettily and more pleasantly than from a flower-garden.

"But another common instance of the good effect of gardening may be mentioned;—it naturally inclines one to be open-handed. The bountiful returns which are bestowed, year after

year, upon our feeble labors, shame us into liberality. Among all the misers who lived on earth, probably few have been gardeners. Some cross-grained churl may set out, with a determination to be niggardly with the fruits and flowers of his portion; but gradually his feelings soften, his views change, and before he has housed the fruits of many summers, he sees that these good things are but free gifts of Providence to himself, and he learns at last it is a pleasure, as well as a duty, to give. This head of Cabbage shall be sent to a poor neighbor; that basket of refreshing fruit is reserved for the sick; he has pretty nose-gays for his female friends; he has apples or peaches for little people; nay, perhaps in the course of years, he at length achieves the highest act of generosity,—he bestows on some friendly rival a portion of his rarest seed, a shoot from his most precious root! Such deeds are done by gardeners.

“Horticulture is not carried on upon a great scale anywhere in this country. We regret that this should be so. A large garden, where taste and knowledge have full scope, is indeed a noble work, full of instruction and delight. The rare trees and plants brought with toil, and cost, and patience, from distant regions; the rich variety of fruits and vegetables; the charming array of flowers, are among the most precious and the most graceful trophies of commerce, and industry, and adventure. Such gardens, whether public or private, are always desirable in a neighborhood. They are among the best gifts of wealth, and scatter abroad too many benefits to deserve the doubtful name of luxury. If we have none near enough to bring good to our own rural village it is at least pleasant to remember that other communities are more fortunate than ourselves. When one cannot enjoy some particular good thing oneself, a very little charity, and a very little philosophy, lead one to be glad, at least, that others may profit by it.

A very striking proof of the civilizing effect of large gardens may be seen any day in the great towns on the continent of Europe, whether in France, Italy, Germany, &c., &c. In these old countries, where grounds of this kind have been more or less open to the public for generations, the privilege is never abused by any disgraceful act. The flowers, the trees, the statuary, remain uninjured year after year; it never seems to occur to the most reckless and abandoned to injure them. The general population of these towns is, in many respects, inferior to our own; but in this particular point their tone of civilization rises far above the level of this country.

OSAGE ORANGE SEED.—A gentleman who has traveled south much where the seed of the Osage Orange is obtained, gave us the following mode of detecting the poor seed:—That which is clean, and looks very white and nice, is good for nothing; while that which is covered with gum and dirt is the good, and will readily germinate. The former is obtained by throwing boiling water on the fruit, by which the germinating principle is destroyed. In the latter case the fruit is buried in the earth, and allowed to rot, when the seed is threshed out and dried—and hence the amount of gum and dirt which adheres; and this he says is a sure guide in the selection of good seed.

TREATMENT OF STRAWBERRIES JUST BEFORE FRUITING.—We have repeatedly urged the importance and shown the advantages of irrigation; but where this cannot be adopted in practice, mulching is a good substitute. The following mode of treatment is described by J. Cuthill in Hovey's Magazine, as practised by Joseph Myatt, the celebrated strawberry raiser and by himself. “Having no water near him, Mr. Myatt depends entirely upon the immense quantity and the quality of his manure for keeping the ground moist, together with a good coat of straw; but where manure is scarce, perhaps my plan, which I have practised for many years, would be the best. I always mulch between the rows with fresh straw, mixed with horse droppings, laying it on at least an inch in thickness, just when the plants are coming into flower: and if the weather is dry, I water frequently, but not over the flowers, until all the fruit is set. By the time the latter is ripe, the strength of the manure is washed down among the roots when they most want it, leaving the straw clean and sweet.”

Spent tan has been extensively recommended and considerably used for mulching strawberries. But N. Lonworth of Cincinnati, who never adopts anything hastily, says “Tan I have discarded. It soon rots and renders the fruit dirty. In its green state it injures the flavor of the fruit. I prefer the old covering, from which the plant takes its name, cut straw.”—*Cultivator*.

AGE OF TREES.—The “Hethel Thorn,” so well known to many Norfolk people, is on a farm now the property of Mr. Hudson Gurney, by whom it was purchased from Sir T. Bevor. The first Sir Thomas always said it was mentioned in a deed of 1,200 and odd, as a boundary, under the appellation of “the Old Thorn.” It is stated, also, that it is mentioned in some chronicle as the thorn round which a meeting of insurgent peasantry was held during the reign of King John. An etching of this interesting relic has been made by Mr. Ninham. The involution of its branches, which are all hollow tubes, as heavy as iron, is most curious; and although the tree is certainly diminished of late years, it still puts out leaves and berries vigorously.—*Notes and Queries*.

HOW TO TURN A WHITE DAHLIA BLUE.—I have been told, but have never tried the experiment, by a celebrated cultivator of dahlias in Belgium, that he will be able in the course of a year or two, to produce a blue one, by keeping constantly watered the root of a white one with a solution of sulphate of iron. The sulphate of iron turns hydrangeas blue, and why not other white flowers as well? Of course the solution must be very weak when used.—*Gardener's Chronicle*.

NEW PLAN FOR RIPENING FRUIT ON TREES.—The last number of the *Paris Journal d'Agriculture de l'Ain* gives a plan for forwarding the ripening of fruit, on trees. Every one connected with horticulture knows that there exist in trees two kinds of sap, one rising and the other falling; the former nourishing the wood, and the latter the flowers and the fruit. The process alluded to consists in binding tightly round the lower part of the branch, on which the fruit is, a piece of wire, in order to stop the descending sap, which, thus arrested in its progress, flows with great abundance to the fruit, increases its size, and brings it to maturity a fortnight or three weeks earlier than in the natural way.

Some men devote themselves so exclusively to their business, as almost entirely neglect their domestic and social relations. A gentleman of this class having failed, was asked what he intended to do. “I am going home,” said he, “to get acquainted with my wife and children.”

Remarkable Voyage in the Air.

John Wise of Lancaster, Pa., made his 131st aerial voyage from Portsmouth, Ohio, on the 3rd instant. His balloon voyage was a remarkable one, and the grandest he ever performed so far as magnificent sights are concerned. He ascended a little after 4 o'clock in the afternoon, and soon rose to an elevation of 2,000 feet. While slowly sailing along at this elevation, by the range of a hill in Kentucky, three rifle shots were fired at him, one struck the car, but so very lightly that it did no harm. Those persons who fired the shots, we have no doubt, did not imagine that there was any person in the balloon. He believes the striking part was mere chance. Some exceedingly useful meteorological information was obtained by Mr. Wise in his voyage. These he states are as follows:

1st. Thunder storms have two plates of clouds, the upper discharging the contents, whatever it may be, rain, hail or snow.

2d. Sheet lightning of an orange color undulates silently between the upper and lower cloud, in a waving motion.

3d. The discharges of electricity take place in the lower cloud,) by discharges are meant thunder and lightning.)

4th. The distance between the upper and lower cloud is not less than 2,000 feet, (this is mere eye measurement.)

5th The uprising current was not continued higher than the lower cloud, and was raging and whirling as long as I was in the margin of the storm, being in twentyfive minutes.

6th. The storm was much wider below than above, and the deposite diverging at least 25 degrees from a perpendicular line.

7th. The deposition of hail and rain was thickest in the centre of the storm. I could not, of course, look through it, but I viewed one from its front, the other from behind its line of direction, and they both appeared the same.

8th. Under the shadow of the upper cloud it is very cold, and in the lower cloud it is quite warm.

9th. The upper cloud was moved by the current which always blows from the west to the east.

10th. Other causes than the upper current may affect the horizontal course of a thunder storm so as to increase or diminish in their violence.

I might here deduce some data from what was so distinctly observed on this occasion, but will for the present leave to abler hands, and particularly to Prof. Epsy and the Smithsonian Institution.

Mr. Wise enjoyed the grand and terrible spectacle of looking down upon the war of elements upon a scale far surpassing Waterloo. We advise Prof. Epsy and Dr. Hare to make a number of aerial voyages to settle their disputes. We think it would be a grand plan for them; much better than writing and printing long papers on the subject. Let them get up into the regions above along with Mr. Wise, and make observations. This point might be useful to the Smithsonian Institute in getting meteorological information.—*Scientific American*.

THE USE AND APPLICATION OF CHLOROFORM.—The medical journals have been discussing the chloroform question again. A few deaths by its use have excited much attention, and some have come to the conclusion that it should not be used to render people insensible during severe surgical operations. The hy-

dropathists have thus expressed themselves. We believe that there is no danger in the use of chloroform, if applied with direction. The deaths which have resulted from its application have been very few, considering the extensive use which is made of it. Its uniform success and safety rendered those incautious under whose superintendence the deaths were produced.—In every case the quantity employed should be weighed or measured, but it is often given without the least attention being paid to the *exact* quantity employed.

EFFECTS OF LIGHTNING.

In the *Annales de Hort. Soc. de Paris*, vol. xxii. p. 120 to 134, an account is given of sixteen trees which have been struck by lightning in different parts of France, at various periods, from 1813 to 1837.

The effects appear to have been very different on different trees. In some, the leaves only were destroyed; in others, the leaves were but very slightly injured, but strips of bark appeared to be torn off; in some the branches were broken, and no other injury done; in some the trunks were split; and in others, no injury was done to the top of the tree, but the roots were laid bare, and torn in pieces. In several cases, where the trees were standing near houses, or hay or corn ricks, they seem to have acted as conductors to the electric fluid, and saved the cottage or the corn-stack or hayrick from being struck by the lightning. This was particularly the case where the Lombardy poplar or the silver fir had attained a great height.—The author of the article, Vicomte Haricart de Thury, concludes with the following advice:—

1. Travellers and country people, reapers, hay-makers, &c., during the time of a thunder storm, should never take shelter under detached trees; more especially under a tree which stands at a distance from any other, such trees acting as conductors.

2. To take shelter rather under a bush, than a tree, and the lower and more spreading it is, the better.

3. Never to take shelter on that side of an object, from which the wind or the storm comes, or, indeed, in the direction of the wind or the storm. Thus, supposing the storm proceeded in the direction of the east and west, then the north and south side of a bush, or other sheltering objects, are to be chosen, and not the east and west side.

4. In the moment of danger, the safest way is to recline at length on the ground, choosing a furrow or ditch, if any should be at hand; but no time should be lost in searching for a furrow or ditch, or for a bush or a hedge, because the upright position, maintained during the search, is incomparably more dangerous than the horizontal one.

5. Always to bear in mind that the danger is great in proportion to the shortness of the time which elapses between the appearance of the lightning and the noise of the thunder.

6. Those who cannot afford the expense of lightning conductors to their houses, farm buildings and ricks, should plant near them late growing trees, such as the pyramidal oak (*Quercus pedunculato pyramidalis*) the Lombardy poplar (*Populus festigiata*) the cyprus, the-larch, the silver fir, the spruce fir, &c.

SHIFTING BRICK HOUSES.—A block, three stories high, has been safely removed 10 feet 6 inches backwards, at the instance of the commissioners for widening the streets of an American Town. As possibly the plan might be of use in some of the towns of old England, where the old and narrow thoroughfares are choked by the traffic of our free-trade age, we

subjoin the *modus operandi*. Concave cast-iron plates are prepared, the foundation of the wall cut away, and two plates facing each other inserted, with cannon balls between them. On these plates and balls, placed under all the walls, the whole building rests. Three screws are applied, and the whole building is rolled upon them to any distance. These plates and balls are removed one by one, and the bricks replaced. It is estimated that the block weighed 7,000 tons. It was rolled on one hundred and twenty balls, and was removed, after the plates were set, in about two hours' time.—*Boston Paper*.

AGRICULTURAL MACHINERY.—The advance that has taken place in agricultural machinery, and all the implements of husbandry, is also very great. Thus we have Lord Willoughby D'Eresby's steam plough, and various machines for digging and draining, which, if found successful, must be of incalculable value, and a high agricultural authority says "assuredly no other nation has reached anything near our stage of advancement." And this will be obvious by inspecting the Belgian and French agricultural implements, which consist only of ploughs and other tools for turning up the soil, and are much less effective than our own. Though America has produced that most valuable modern invention, the reaping machine, still Professor Johnston tells us that at a late meeting of the Farmer's Club at Staten Island, in America, it was unanimously resolved that under no circumstances was it expedient to plough deeper than 6 inches. Thus, while the progress we have made in all mechanical pursuits, and in the arts and sciences during the last 50 years, fills us with wonder and astonishment, still in agricultural advancement we stand higher than any other nation in the world.—*English Paper*.

WASHING MADE EASY.—Every man on earth ought to contribute something for this object—not because he ought to do all in his power to lessen the labour of those who make said linen clean—just for his own personal comfort, or the comfort of his better half, it he happen not to be only a half of human existence himself, but for his personal safety. Because, when washing day comes round—and washing work is particularly hard—you had better believe, if you have never had experience, it is a little unsafe for you to come within reach of soap suds and wash boards. If you should ever be guilty of such a piece of insanity just tell the opposition you only came into the kitchen out of the most benevolent motives in the world; merely to tell them that the "crazy folks" in the asylum at Hartford, Ct., mix a gill of alcohol with a gallon of softsoap, just as they are going to rub it on the clothes which they then soak two or three hours, and then merely rinse out in clean water, and all the dirt is out as effectually as good sense is out of a fellow after drinking the same quantity of the "poison stuff." Just tell them that is the easiest way to make washing easy, and get them to try it, and you will thereafter find no reason to run away on washing day.

In washing stairs and passages, always use a sponge instead of a cloth when washing the space between the carpet and wall, and you will not soil the edges. Sponge is cheap, and this information is cheap, but it is valuable to all housekeepers.—*The Plow*.

GRASS.—The experiments of Kuhlman, the French agricultural chemist, upon the action of ammonia on grass lands, at once point to ammonia as one of the most important manures for increasing the productive power of our pasture and meadow land. This chemist applied ammonia in different forms and combined with other simple mineral manures; and he found that in all cases the amount of grass or hay

produced was in exact proportion to the amount of ammonia contained in the manure. Guano containing a large amount of ammonia, and being also its cheapest source, must, therefore, prove of the greatest benefit in the production of grass. For grass land, from two to four cwt. of guano, mixed with soil, may be used per acre. Wet or damp weather should be selected for sowing it. Probably the end of March or the beginning of April is the best time. Under circumstances, guano, may be applied to grass land in the autumn, particularly where the under-soil is of a strong or loamy character. Thus applied it may have the effect of bringing up the grass a little earlier in the spring.—*Nesbit on Peruvian Guano*.

CLOVER-SICK LAND.—A mixture of nitrate of soda, gypsum and salt, produced a deep green, dense mat of clover; when the part so dressed was thin, pale, and hungry. The quantity having been only a few acres, it must be regarded as a guide to experiment, rather than an established remedy. A ton each of gypsum and fishery salt, and half a ton of nitrate of soda well mixed, may be strewed, in damp weather, or light rain, over 15 acres. Where fishery salt cannot be had reasonably, hide salt, or any other foul with animal matter may be substituted. Clean salt I have not tried.—*W. PRIDEAUX*.

PATENT TILE AND PIPE MAKING MACHINE.—We were invited yesterday to witness the working of one of Mr. Hart's Tile Machines, at the Atlas Works, Borough road, Southwark. This machine is one of a series intended for Italy, and its construction and principle have attracted a good deal of attention. It makes pipes, tiles, hollow and solid bricks, cornice work, and is capable of being readily adjusted to some 1200 different patterns. It is worked by a screw, and is simple to singularity throughout, and is, indeed, the very Quakerism of mechanics. A man and a boy are capable of giving it a pressure of ten tons; and by a curious reversing or self-acting movement, no time is lost in the working of both ends, one man being continually at work while the boy is carrying away.—Thus, and with only moderate exertion, we saw tiles produced at the rate of eight miles per ten hours, and hollow and solid bricks, &c., with like rapidity.—*London Morning Paper*.

THE SCIENCE OF CANDLE BURNING.—Before you put your candle out, look at it. It has been burning some time unsnuffed, and gives little or no light; the wick is long and is topped by a heavy black clot—a lump of unconsumed carbon. Take the candlestick in your hand, and move it gently from side to side; the superfluous wicks burns away, and the candle is again bright. When you ask yourself why this is, you learn that flame is hollow, and as it admits no oxygen, which is necessary for combustion, the wick which it surrounds remains unconsumed, and diminishes the light. When the flame, by motion, leaves the wick exposed at intervals to the oxygen of the atmosphere, it speedily burns away. Note the valuable deduction from this fact—the formation of a wick which constantly turns outward and reaches the exterior air, and so gives us a candle requiring no snuffing.—There is much philosophy in the burning of a candle. The wick, you may think, is intended to burn and give light; but this is not exactly the fact. The wick is simply to bring the melted tallow, or oil, if in a lamp, into that finely divided state in which it is best fitted for combustion. The heat applied to "light" the candle decomposes into its constituents the small quantity of tallow next the wick; heat and light are produced in the operation, and the heat so produced carries on the decomposition.—*The Builder*.

COST OF SUBURBAN DRAINAGE.—A space of ground near Birkenhead, now called the Park, was, a short time ago, a mere marsh, over which thick mists hung at nightfall. "It was thoroughly drained with drains varying in depth from seven feet to close surface drains. The mists and fogs created on this tract have, since the drains came into operation, disappeared. The expense of that work was £20 per acre; and the land, which before the drainage was worth only £1 per acre, is now worth, at the least, £4 per acre for pasturage; so that the work pays 15 per cent direct profit, besides effecting its main object—the improvement of the neighbourhood in comfort and salubrity." The cost of draining one acre of land for a detached building, the site of the building deep drained, and the rest of the land thoroughly drained is shown by the return of the Board of Health, just quoted, to be met by an annual charge for 20 years of 18s. 3½d. in heavy soils. The drainage of one acre of land for four semi-detached residences would be met by an annual charge per house for 20 years of 3s. 11d., 4s. 7d., or 5s. 7d.—*Builder*.

LIFE IN THE ARCTIC SEA.—Iceicles hung round the deck, peaches became a mass of calcedone, butter was cut with a chisel, beef with a pickaxe and crowbar. Walking out you are conscious of a bracing atmosphere. Whiskers and face are glazed with ice. Put out your tongue and it is frozen to your chin. On one occasion, a poor fellow recovering from inflammation of the lungs, being asked how his frost bitten ear came off, he produced it in a piece of paper, and said, "Doctor, I didn't want to trouble you, but it dropped off last night."—*Dr. Kane's Lecture on the Arctic Expedition*.

DEEP WELL NEAR BANSTED DOWNS.—I am well acquainted with the country immediately south of the Bansted Downs, and can give W. S. G. some information about the wells there. The nearest stream is a small branch of the Mole, which has its rise some three miles off, just beyond Merstham (pronounced "Meestrum"). The ponds are very few and shallow, so that the inhabitants have to rely on wells for their water. Wells, however, are an expensive luxury, and appertain only to the bettermost dwellings. I know several labourer's cottages distant upwards of a mile from the nearest well or pond; they use what water they catch, and when that is gone, shift as they best can—most commonly do without. This scarcity of water may be the reason why a district within fifteen miles of London is so thinly populated.—*Notes and Queries*.

WALKS ABROAD.

Go abroad
Upon the paths of Nature, and when all
Its voices whisper, and its silent things
Are breathing the deep beauty of the world,
Kneel at its simple altar, and the God
Who hath the living waters shall be there.

WILLIS.

EVENINGS AT HOME.

Now stir the fire, and close the shutters fast;
Let fall the curtains; wheel the sofa round;
And while the bubbling and loud hissing urn
Throws up a steamy column, and the cups
That cheer but not inebriate wait on each:
So let us welcome peaceful evening in.

COWPER'S "TASK."

THE OLD GREEN LANE.

BY ELIZA COOK.

'Twas the very merry summer time
That garlands hills and dales,
And the south wind rung a fairy chime
Upon the fox-glove bells;
The cuckoo stood on the lady birch
To bid her last good-bye—
The lark sprung over the village church,
And whistled to the sky;
And we had come from the harvest sheaves,
A blithe and tawny train,
And tracked our paths with poppy leaves.
Along the old green lane.

'Twas a pleasant way on a sunny day,
And we were a happy set,
And we idly bent where the streamlet went
To get our fingers wet;
With the dog-rose there and the orchis there,
And the woodbine twining through,
With the broad trees meeting everywhere
And the grass still dank with dew.
Ah! we all forgot, in that blissful spot,
The names of care and pain,
As we lay on the bank, by the shepherd's cot,
To rest in the old green lane.

Oh, days gone by! I can but sigh
As I think of that rich hour,
When my heart in its glee but seemed to be
Another wood-side flower;
For though the trees be still and fair,
And the wild bloom still as gay—
Though the south wind sends as sweet an air,
And heaven as bright a day;
Yet the merry set are far and wide,
And we never shall meet again;—
We shall never ramble side by side
Along that old green lane.

STAR LIGHT.

From the wild disorder of scattered stars which the first picture of the heavens presented, science has enabled us to grope our way through the dark labyrinths of chaos, guided only by the soft lustre of those winning stars, till we have been enabled to see the whole grouped together in one great and complete system, of a magnitude which makes arithmetic ridiculous, yet simple in arrangement as the conceptions of a child. Man has no part in all these sublime galaxies but to stand a silent spectator of their overwhelming beauty. Compared with the awful periods which compose the years and ages here, what is this momentary life-time of man? Nature works complete at every step, from the whirling bubble on the brook to the congress of a million stars. The fall of dynasties, the growth of new peoples, antiquities, and traditions, vanish before this severe face of marble solemnity. The petty cares, jealousies, and passions of men fade away in the contemplation of these awful cycles; and startling is the contrast, after traversing such realms of majesty to wonder, where worlds whirl without jar, and orbs rush without concussion, to turn back to man, and see him struggling on the surface of a flood and buffeting with its boiling waves. "One might think the atmosphere was

made transparent with this design, to give man in the heavenly bodies the perpetual presence of the sublime; seen in the streets of cities, how great they are. If the stars should appear but one night in a thousand years, how would men believe and adore; yet every night come out these preachers of beauty, and light the universe with their admonishing smile."

This great double convex lens-shaped system, of which the Milky-Way is the outer extremity or ring, is not the universe, but a trivial part of it. Wherever the telescope has penetrated, it has brought to light *other* great systems of starry dust, whence the star-light comes in softened clouds, indefinite and vague. These are composed of myriads of separate stars, each one a sun, revolving with its attendant planets around the centre of the whole. In these we see the circular outline repeated in obedience to the law of gravitation,—the law which alike controls the form of a dewdrop or a tear, and a congress of a thousand stars. Beyond these are others more distant still; and thus down far, far into that soundless sea, the starry systems float and sing; and the telescope, but now a thing of marvel and triumph, is at last a toy and contemptible, for it reaches the cloudy masses no more. The star-light comes, but it will tell no story; it brings pictures, but they are pictures of mystery. And thus, from the spectacle of starry worlds revolving in our sky, we are carried up to the idea that those masses of nebulous light are astral systems also; and come at last to the conjecture, that, as the lesser worlds revolve around the sun, and that sun, in his own system, around a greater sun, the star-systems themselves, which we see floating away in the abyss yonder, may all be traversing a pathway around the feet of Deity, receiving from that Central Sun of all things a glory and a light Divine. Let us bow our heads, for surely God is in the midst, controlling, watching, and judging, but loving all the while!

But even here let us retrace our steps, for the star-light can yet tell us something which shall make manifest the omnipotence of Deity, as an attribute in harmony with that same star-light, and as a necessary consequence of its own physical law.

Light is not instantaneous in its passage; it requires time to travel. It moves at the rate of 2,000,000 of miles in a minute. Hence it is eight minutes reaching us from the Sun, or the Sun has really risen eight minutes before we see him, and is now eight minutes in advance in his path of the spot which he appears to occupy. Hence, again, the bright star in Centaur, which is eighteen billions of miles distant, is seen by us, not as it now is, or where it now is, but where it was, and as it was, three years ago; and if it were now to explode into fragments, and vanish from the sky, it would be three years before we should lose its picture in the heavens. This will be easier understood, if it be remembered that the ray of light leaves the star, and passes through space quite unconnected with its origin; and, when it falls on the optic nerve, it will give the eye a picture of the star, whether the star be there or not. Thus, we see the star Vega, as it

was twelve years ago, and a star of the twelfth magnitude as it was four thousand years ago. In the same way, if we reverse the phenomena, the inhabitants of the sun see the earth not as it is now, but as it was eight minutes before; and a spectator in Vega, as it was twelve years before; and, in like manner, to the deepest recesses of the universe. What is the result of this?—namely, that the universe contains not only the whole of space, but also the whole of time! Every event, as well as every existence, is treasured there; and empty space becomes a microcosm of the ages. Everything on which the light falls reflects back a picture of itself.

The stars send forth complete pictures of all the scenery and appearances on their respective surfaces; and although, from our limited powers of vision, we are unable to perceive anything more than a point of light; nevertheless, that point of light, could we dissect it, would reveal the landscapes, seas, and cities, as they were when the light came away, as plainly as we can behold the scenery of our own hills and valleys? * What then? Why, from some part of space the eye of Omnipotence can behold whatever has taken place here, or in any other world. There is some spot where the picture, embalmed in a ray of light, is speeding on its way through infinitude; and from thence He can behold it. At the Centaur in 1854, the picture of London in 1851, with its Palace of Glass and gathering of the Nations, will be visible; and upon a star of the twelfth magnitude may now be seen the founding of Memphis, and the wanderings of Abraham; while pictures of the dim geological ages of the earth are now speeding past the regions of distant nebulae, to travel on and on in a journey which can never be completed. Heed your ways, therefore; for the eye of God watches over us physically as well as spiritually; the deed of to-day is to become part of the universe, and to be kept speeding on through starry spaces and silvery galaxies for an eternity to come.†

Possibly the spirit of man may hereafter be permitted to read these revelations of the star-light, when, separated from earthly scenes, he soars upward amid the stars, and looks upon the picture of his own life treasured up there in the blue expanse, and winging its flight from world to world upon the pinions of the lovely star-light. What, then, will be his emotion as the scene wherever he played the coward or the tyrant comes before him, and in pain and shame he

* In proof of this, witness the geographical features which may be seen of the moon, the planets, Mars and Venus, by the aid of a telescope. Jupiter, further distant still, yields something regarding his aspect; and Saturn, more distant still, a few features of its physical condition.

† Simple possibility is all the writer deems necessary in the enunciation of this idea, which is well-rooted in the laws of physics. Such exceptions as may occur in regard to events which take place in houses and places which impede the passage of light, are of no moment in the statement of a general truth. For the thought itself, the writer is indebted to a little work entitled "The Stars and the Earth; or, Thoughts upon Space, Time, and Eternity. Builliere, 1847."

feels impelled onward as the picture speeds,—watching its progress through all the starry cluster, crying as it goes, “Stars, stars! behold the story of a man!” Will he dwell in those stars hereafter, and join in the melodies which they sing while hurrying in majestic sweep around the throne of the father? Who knows but such may be?

“If yon bright orbs which gem the night
Be each a blissful dwelling sphere,
Where kindred spirits re-unite
Whom death has torn asunder here;—
How sweet it were at once to die,
And leave this weary world afar,
Mixt soul in soul to clear the sky,
And soar away from star to star.”

Well, as the holy star-light stoops down to bless the eye with its lustre, and the mind with its revealings, may it come even into our hearts as a ray from the Divinity, teaching us to love while we live; and, like the stars, to sing and circulate without jar serenely together.—*Familiar Things.*

BEAUTY EVERYWHERE.

We all of us, in a great measure, create our own happiness, which is not half so much dependent upon scenes and circumstances as most people are apt to imagine; and so it is with beauty. Nature does little more than furnish us with the materials of both, leaving us to work them out for ourselves. “Stars and flowers, and hills, and woods, and streams, are letters, and words, and voices, vehicles, and missionaries,” but they need to be interpreted in the right spirit. We must read, and listen for them, and endeavor to understand and profit by them. And when we look around us upon earth, we must not forget to look upward to heaven; “Those who can see God in everything,” writes a popular author, “are sure to see good in everything.” We may add with truth, they are also sure to see beauty in everything and everywhere. When we are at peace with ourselves and the world, it is as though we gazed upon outward things through a golden-tinted glass, and saw a glory resting upon them all. We know that it cannot be long thus; sin and sorrow, and blinding tears, will dim the mirror of our inmost thoughts; but we must pray and look again, and by-and-by the clouds will pass away. There is beauty everywhere, but it requires to be sought, and the seeker after it is sure to find it; it may be in some out-of-the-way place, where no one else could think of looking. Beauty is a fairy; sometimes she hides herself in a flower cup, or under a leaf, or creeps into the old ivy, and plays hide-and-seek with the sunbeams, or haunts some ruined spot, or laughs out of a bright, young face. Sometimes she takes the form of a white cloud, and goes dancing over the green fields, or the deep blue sea, where her misty form, marked out in momentary darkness, looks like the passing shadow of an angel’s wing. Beauty is a coquette, and weaves herself a robe of various hues, according to the season,—and it is hard to say which is the most becoming.

GOOD COMMON CAKE.—Take six ounces of good common rice, the rice must be ground, and the same quantity of flour, the yolks and whites of nine eggs, half a pound of sugar, and half an ounce of carraway seeds. Mix well together, and bake for an hour in a quick oven.

CUSTARD PUDDING BAKED.—Boil a pint of cream, with three blades of mace or a stick of cinnamon; when cold take four yolks and two whites of eggs, nutmeg, and sugar to taste, beat them well, and stir into the cream, pour into cups, and bake in a quick oven.

WHITE SPRUCE BEER.—Take six pounds of white sugar, four ounces of essence of Spruce, ten gallons of boiling water, and an ounce of yeast. Work the same as in making ginger beer, and bottle immediately in half pints. Brown spruce beer is made with treacle instead of sugar.

CURRENT WATER.—Take a pound of currants, and squeeze into a quart of water; put in four or five ounces of pounded sugar. Mix well, strain, and ice, or allow to get cold.

EFFERVESCING LEMONADE.—Boil two pounds of white sugar with a pint of lemon-ginger, bottle and cork. Put a table spoonful of the syrup into a tumbler about three parts full of cold water, add twenty grains of carbonate of soda, and drink quickly.

FOR A COUGH.—Half an ounce of marsh-mallow root, half an ounce of liquorice root, both shred fine; boil in a pint and a half of water, until reduced to a pint. Strain it, and sweeten to taste with brown sugar-candy. Take half a tea-cup full in the same quantity of new milk, three times a day, particularly fasting, and the last thing before going to bed. Asses’ milk may be more effectual, when it agrees with the patient.

GREAT SALE OF SUPERIOR THOROUGH BRED SHORT-HORN CATTLE.

The Subscriber will offer for sale, his entire herd of choice short horns, comprising 50 head, young and old at Public Auction, on Wednesday, the 13th of October, 1852, at One o’clock, P. M. at his Farm 2½ miles from the City of Troy; reserving to himself one bid on five Cows and Heifers and one Bull, say six head in all, and these to be pointed out previous to the commencement of the sale; this bid will be made public when the six animals are brought to the stand for sale. Should any gentleman advance on the single bid made by the proprietor, the highest bidder will be entitled to the animal. It is proper to say, the severe drought in this vicinity reducing the hay crop one half, has decided the proprietor to make this sale at the time named, instead of next June, which he had purposed to do.

The well established reputation of this herd in this Union, and in Canada, and the splendid herd it has measurably sprung from viz; the famed herd of that eminent English breeder, the late Thomas Bates, Esq., renders it hardly necessary to comment upon its superior merits. It may not however be inappropriate to remark, that the establishment of this herd was commenced in 1838, and that the most careful attention has since been paid to its breeding, and it now contains mostly all the reserved stock of two former public sales. Since 1840, the proprietor has imported from the late Mr. Bates, and his friends and late tenants the Messrs. Bells, 7 head of short horns; and besides these he has now on the passage across the Atlantic, shipped 21st. June, on board the Packet Ship Kossuth, Capt. J. B. Bell, a superior yearling roan Bull, having many crosses of the famed Duchess Bulls of Mr. Bates. Including this latter animal and

the two beautiful red roan 3 year old Heifers, which came out from England last September, "Yarm Lass" and "Yorkshire Countess" and the beautiful Heifer Calf of the latter animal, got in England by the Duchess Bull 5th Duke of York, there will be 14 head of this imported stock, and its immediate descendants. There have been sold from this herd but three Heifers from these importations, and these Cows were sold at \$300 each. All young Bulls bred from these Cows, except those now offered for sale, have also been sold at private sale, at \$300 each, most of them while quite young.

Besides these 14 head of high bred animals, the noble premium Cow, Esterville, 3rd, bred by E. P. Prentice, Esq., of Albany, and her equally fine 2 year old, red and white Heifer bred by me, got by the Bates Bull Meteor, and three of the famed milking Willey tribe, the same tribe of Cows as the Heifer Ruby, sold by me to Mr. S. P. Chapman of Madison Co. and which Cow was awarded the first premium by the New York State Agricultural Society, for producing the largest quantity of butter in 10 days in June, and 10 days in August, on grass pasture only, being a fraction over 40 lb. in those 20 days. There are other valuable tribes in the herd, as the printed catalogue will show.

The Catalogue will be ready for distribution about the 1st of August, and will exhibit richness of pedigrees rarely to be met with, showing the descent of the most of the animals, from the best animals on record in the English herd book. Having received an invitation from H. Strafford last winter to forward a list of the pedigrees of my herd to be inserted in the forthcoming volumes of the English herd book of which Mr. Strafford is now the Editor, several pedigrees were sent to him of the animals here offered for sale, and will appear in said book.

A credit of 9 months will be given on all sums up to \$300, and 9 and 18 months on all sums over \$300, for approved paper, with interest payable at some Bank in this State.

GEO. VAIL.

Troy, New York, July 9, 1852.

Letters



Patent.

TIME & LABOR SAVED ARE MONEY EARNED!

B. P. PAIGE & Co., SOLE PATENTEES.

THE Subscribers having had secured to themselves the exclusive right to Manufacture and vend to others to use, in the Territory of Upper and Lower Canada,

SEVERANCE'S PATENT IMPROVED HORSE-POWER AND THRASHING MACHINE,

One of the most Valuable Machines ever invented for saving labor and time, respectfully inform the Public that having greatly enlarged their Extensive Establishment on Wellington Street, now extending through from Prince to George Street, which will give them ample room and accommodations, they trust, to enable them hereafter to supply the whole Farming Community of Canada, with a machine that will thrash and clean more grain in a day with less expense and more neatness than any other Thrashing Machine in use, and requiring but Two Horses.


We beg leave to say to our Customers & Friends, that we are again prepared to furnish those in want of Thrashing Machines, with an article superior even to those heretofore manufactured by us. Our long experience in making, and the very liberal patronage we have enjoyed in the sale of our Machines, has, together with a constant determination to produce an article that will never fail to excel all others, caused us to watch carefully all the improvements that could be made from time to time, until now we feel confident in saying, that for durability, neatness of Work and amount of it they can do, our Thrashing Machines are unequalled by any in use, and while the grain is thrashed clean, and none of it broken or wasted, it is at the same time perfectly cleaned, fit for the mill, or any market.

One of the above named Machines, will give a man, with proper diligence and attention, an income of from five to eight hundred dollars a year, as appears by the statements of a great number of gentlemen, who thrashed last season, and have kindly given us permission to refer customers to them for information in regard to the operation of our Machines.

Whereas, Letters Patent were obtained, bearing date March 5, 1849, on said Machine, the public are cautioned against purchasing, using, and manufacturing any imitation article, as all infringements will be dealt with according to the law of the land. All the genuine Machines will be accompanied by a Deed, signed by B. P. PAIGE, the owner of the right, giving the purchaser the right to use or transfer the same.

All orders addressed to us, or to **WILLIAM JOHN-SON**, our Agent, will be promptly attended to. Machines shipped to any Port in Upper or Lower Canada, and every one warranted to be as good as recommended.

B. P. PAIGE & Co.

 The Agents for the sale of the above Machine in Canada West are as follows:—Workman, Woodside & Co., Toronto; Hoswell Wilson, Ancaster; Horatio A. Wilson, Westminster; M. Anderson & Co. London; Mr. Samuel Young, Asphodel. 66s-6m

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AND

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NO. 9.

AN ESSAY ON AGRICULTURE.

BY LEWIS CHIPMAN, OF THE COUNTY OF LEEDS,
[To which a Diploma was awarded by the Board
of Agriculture of Upper Canada.*]

Agriculture, whether considered as a Science or an art, must be regarded as a subject of the greatest interest and importance.

It was not unknown to the ancients; from the earliest period it has been followed to some extent. Formerly it did not receive as much encouragement as in modern times, yet, in the days of Varro, in the home provinces of Rome, wheat was raised in large quantities, and some land produced from thirty to forty bushels per acre, but this was not general with respect to other parts of the world, nor did it continue long in those provinces. Although the arts and sciences were carried to some extent among the Greeks and Romans, yet Agriculture did not advance but retrograded for more than a thousand years, chiefly because they did not obey those laws which the Creator laid down to govern the fruitfulness of the soil; and at the present day, if we aspired at nothing more than the ancients did formerly, we would be as imperfect in agriculture now as they were two thousand years ago. But of late, science combined with practical farming, has been the motto with many intelligent and influential men; they have ascertained that in addition to education, something more is necessary to advance agriculture and

bring it to greater perfection, in order to supply the present demand for food. It is well known that every year brings its thousands of inhabitants from foreign countries to settle among us, who must subsist from the produce of the soil; and unless agriculture receives proper encouragement it will not supply the inhabitants with food and export produce to foreign countries in any great quantities. At no time in our history has it required as great attention as at present. When this country was first settled, the inhabitants few, and the soil fertile, there was little attention paid to agriculture; but after the soil became partly exhausted by a succession of crops, it became necessary to replenish it by manure to bring it back to its original state. Many points worthy of consideration are embraced in the subject before us, but space will not allow us to dwell long upon any one in particular. I shall consider first.

ROTATION OF CROPS AND METHOD OF RENOVATING WORN OUT LANDS.

Many parts of this country which have been tilled for a number of years are nearly worn out, in consequence of continued cropping and applying but little if any manure. Generally after the first crop is taken off, the ground is seeded and kept for meadow fifteen or twenty years in succession, till it will not produce more than half a crop; it is then perhaps ploughed and a crop or two raised—then seeded again and in this way the exhaustion is brought about.

In order to restore land that was originally fertile, various experiments have been made to ascertain what crops are best suited for certain soils, and what method is most beneficial for supplying the earth with the elements of fertility which have been taken off, in order that its expanded powers may be replenished.

It is easier to prevent sterility than provide a remedy, but after the soil has become exhausted by bad management nothing but a systematic rotation of crops will prove beneficial.

* This Essay was written to compete for the prizes offered by Johnstown District Agricultural Society, in 1851, one condition of which, was, that the Essay should be the bona fide production of *practical farmers*.

The kind of crops to be raised are determined by the climate and soil in a great measure.—The rotation of crops is a point on which the profits of the farmer depend more than on any other.

The following plan has been recommended by a recent writer:—

“Divide the arable part of the farm, whether large or small, into six divisions and number them in order.

The rotation is for No. 1, fallow or root or drill crops, well manured and labored.

2nd. Wheat or Barley.

3rd. Hay.

4th. Pasture, first year.

5th. Pasture, second year.

6th. Oats or Peas.

The cultivation of No. 1 is considered the basis of the whole system. In the Fall all the manure from the farm is to be spread on this field and ploughed in; the furrows being made so as to let off the water as early as possible after the snow disappears. As soon as it can be labored in the Spring, the earth should be well pulverized by the plough, the cultivator and the harrow, and the crops sown in drills sufficiently wide to permit of horse-hoeing afterwards. The following is considered a good assortment of crops:—Potatoes, Carrots, Mangel Wurtzel, Indian Corn and Horse-Beans. These are to be kept perfectly clean and the earth well stirred between the drills as long as the growth of the crops will permit. This leaves it in good condition for Nos. 2, 3, 4, 5 and 6 of the rotation, none of which require any manure or extra labor; all of which, when completed, leave the ground in better condition at the end of six years for the second application of the same cultivation than it was at the first. The second year, field No. 2 is to be treated the same as field No 1 was the first year, and so on till the end of six years, when they will have been cleared and fertilized, and the rotation begins at the same point from which it started, with greatly improved prospects of success. This plan has been found, by experiment, to be very profitable even for the first six years of the renovating process, while it leaves the whole farm clean and fertile at the end, ready to be carried forward to higher perfection.”

Another writer observes—

“Gravelly soils are generally considered best adapted to crops of Rye and Red Clover, alternately. Dark sand, and a sandy loam soil will produce Indian Corn and Potatoes for the first crop, the second Turnips, then Wheat or Rye if the Turnips can be removed in time; then a Clover; then another crop of Wheat or Rye; then the Indian Corn and Potatoes again. Or

Barley with Clover may come in after Turnips.”

The following six years' rotation is recommended by a certain writer:—

“1st year.—After breaking up the sward put in Oats, sown thick, to be cut for fodder.

2nd year.—Potatoes or Indian Corn, or both.

3rd year.—Ruta-baga.

4th year.—Barley or Wheat, sown with Clover and herdsgrass or red hay.

5th year.—Clover mowed.

6th year.—Herdsgrass and Clover.

In the Autumn of the sixth year, the land to be broken up; and on the seventh the same rotation repeated. It is difficult to designate particularly the most suitable changes of crops, as they are more exactly to be ascertained by the known product of land when properly cultivated. The following will illustrate this principle:—*Never to select for a crop, plants not adapted to the soil, and never in any soil, to permit two crops of the same kind to follow each other.”*

Many in the country already pursue some advantageous rotation of crops; a majority, however, think they know enough already, without following any scientific or well improved plan.

It is considered best to raise green crops instead of naked fallows; they should be turned under in sufficiently hot weather to insure their running speedily together into a putrid state.—This mode is thought better than to obtain the manure by feeding or soiling of cattle, especially when it is scarce.

Buckwheat, Rye, Oats, Clover and Turnips, are considered well adapted for this purpose.—Rye ought to be ploughed in when in full flower; it is one of the best fallow preparations that can be devised to restore an exhausted soil. Weeds have been highly recommended for the same purpose, and proved valuable as manure.

Land that is infected with thistles or other rubbish, or stiff clay soils, may be summer-fallowed to advantage where it cannot be sufficiently tilled without it, but this process only gives a crop every alternate year.

Peas and Clover will not do well on the same soil till after a succession of years; while Oats and Rye may be cultivated alternately with success if the land be properly manured.

In this part of Canada, formerly Black Sea Wheat did well, and Fall Wheat produced but a small crop, lately the former has yielded very sparingly, while Club, Scottish and Fall Wheat have amply repaid the farmer for his trouble.—Hence, we learn that in order to obtain good crops, as the seasons change we must change seed also. Second,

CULTIVATION OF GRASSES, AND REARING STOCK.

In this part of the country almost every farm will produce grass for grazing and hay, and many will produce little else; in this manner all the land can be managed to bring something to advantage, and if a farmer does not have grain to carry to market he will have that which is as profitable, cattle, horses, sheep, butter and cheese. Some land is more profitable in tillage than in grass, particularly dry and light soil; yet constant cropping with grain would exhaust them of fertility, unless frequently manured. In these Counties, (Leeds and Grenville,) and others similar in soil, where so much of the land is unfit for raising grain in any considerable quantities, I would suggest the propriety of paying more attention to the raising of the different grasses and more stock.

This plan is followed to a considerable extent in some of the neighboring States, and is more profitable to them than raising grain. Farms are constantly improving which are kept in this manner with but little trouble, while the reverse is commonly the case with grain farms, as a succession of crops will in all cases impoverish them, unless frequently manured, and this cannot be done sufficiently if the hay and grain are taken off to market. They will have nothing left to replenish themselves, and will in a few years be almost barren in comparison to what they might have been were they rightly managed.

The proper cultivation of meadows contributes greatly to the prosperity of the farmer, he can thus increase his stock and enrich his farm. The increased wealth of many farmers in several of the European Countries is mainly attributable to this cause.

Meadows have been classed by some under three heads, viz.: Low or alluvial, as on the banks of rivers, creeks, and brooks; uplands naturally moist with clay or heavy loam, and bogs and swamps that have been reclaimed.

Grass seed should never be sown with grain, each should be sown separately; the roots of the grain are obstructed by those of the grass, the soil will be more or less covered by the grass, and the roots of the grain are injured on account of being in a great measure excluded from the air and heat, dews and rains. After the grain is taken off, the ground should be ploughed, and in a few days grass seed sown on the furrow, harrowed and rolled. If the weather prove dry, the seed will remain safe in the ground ready to improve the benefit of the first showers, when the grass will soon make its appearance and a good progress will be made before winter sets in. If the winter should prove favorable nothing more is wanting, should the ground be

rich to secure a good crop, but to pass the roller over it in the spring as soon as the frost is out of the ground.

Clover is extensively raised in some countries, and if raised in greater quantities among us would be profitable; no farm suitable for clover should be without it. Gravelly soil which will not retain the grass is suited for clover, it should be sown in the spring, harrowed and rolled; if sown in the fall it is liable to be killed by the frosts of winter. It should be sown thick, much is lost by sowing too scanty a supply of seed; when sown thin there will be a thin crop, the stalks will be large, and dry, and contain but little nourishment.

Rearing stock, as I have before intimated is an important consideration, especially where farms are better suited for grazing than raising grain. It has been ascertained that a cow well kept will produce in one year 400 lbs. Cheese, which will sell for not less than \$7 per cwt. and this will amount in the course of the year to \$28, besides making considerable pork. The expense of commencing a dairy is about £25, with from 30 to 40 cows. Some object to the raising of much stock on account of the fodder required during the winter; it is true it requires time and expense, but if rightly managed will be less than is generally supposed. Cows should be stalled in winter, which will lessen the expense of fodder one-third or more, and they will be sufficiently improved to pay the extra expense.

Sheep husbandry can be made profitable to the farmer. Thin, barren, and upland soils, which are so common in some parts of this country, can be cultivated to advantage in rearing sheep where no other animal could be maintained with equal profit, yet a quantity of meadow land is necessary. Suppose a farmer has 100 good sheep, those will shear about 300 lbs. wool, which will generally sell for not less than \$100, and will raise 50 lambs, worth \$50, making \$150 for wool and lambs; 25 acres of good turf land is sufficient for meadow and pasture; 10 acres of meadow, at one ton per acre, and 15 of pasture.

Suppose 10 tons at \$7.....	\$70
Pasturage, say.....	15
Expenses of Shearing, &c.....	15

Total.....\$100

Leaving a clear profit of \$50 or 50 per cent. Third,

ROOT CROPS.

These can be made an important article in husbandry, particularly turnips, beets, and carrots; they are good food for all kinds of stock, and will enrich the soil by increasing the quantity of manure; they can be raised in large quantities

on a small space of ground, and are well fitted to precede barley or oats. Fourth,

ON THE APPLICATION AND SAVING OF MANURE.

Manure is considered to the crop, what grain and forage are to our cattle. Continual cropping, without manure, exhausts the soil as much as constant draining from your purse, without being replenished. Many farms are now almost barren which were originally fertile, by being exhausted. They are cropped till the produce of the soil will not pay the expense, and then often thrown into commons.

It has been frequently asked by many persons whether fermented or unfermented manures are the most profitable?

Manure, while fermenting, gives food and moisture to plants; and soils manured with unfermented manure suffer less from drought.—Unfermented manures lose in bulk and weight; yet what is lost, if buried in the soil, affords food for the crop. Take a quantity of unfermented manure and draw it on a field intended for corn, spread the manure, plough, and harrow, then take the same quantity and put it in a pile to rot, plant another piece to corn of equal dimensions, and when the corn is harvested put on the manure which was left in the pile to rot, and sow both pieces to wheat, and the land dressed with unfermented manure will yield the most wheat, because less exhausted in the process of summer rotting, and for the reason that in cultivating, it became better incorporated with the soil, and the corn crop would be increased in consequence of the gasses upon which the crop fed and thrived; but if it had been left in the yard, would have been dissipated by the winds and lost.

Manures are the bases of all fertility, and when we consider that all vegetable and animal substances are capable of being converted into manure, every pains should be taken to secure it.

Yards, where cattle are kept, should be excavated in the centre in a concave form, here should be deposited annually weeds, coarse grass, pumpkin vines, and potatoe tops; during the winter the excavation gives no inconvenience, and should the weather be soft, the borders will afford plenty of room for cattle.

Bone manure is cheap, light of carriage, and is excellent on account of its strength and durability. Lime is used in considerable quantities as manure; it is usually applied to Indian Corn in the Spring, and to sowing wheat in autumn. Fifth,

THE ADVANTAGE OF DRAINING.

This branch of farming is too much neglected; the choicest lands often lie in a state of uncultivation, and might be made profitable with but moderate expense. Under-drains are best; they

take up no room, and should be deep enough to plough over. Lands that are low and wet, and are not drained, seldom produce good crops, the soil is cold in the early part of the season, and retards the growth of grass, and will be coarse and afford but little nutriment for cattle.

Besides ditching in the lowest parts they should, when necessary, be made round the parts to be drained and left open in order that the water from the higher parts may fall into these drains, which should unite at the outlet and be carried off.

ECONOMY IN FARMING AND GENERAL REMARKS.

It is good economy to select the best breeds, grain, and farming implements, and will often repay double fold.

Industry, economy, and perseverance, are three things important in all branches of pursuit, but none more so than to the farmer; with these he need not fear, and is most sure of obtaining a good livelihood.

Small farms are generally considered more profitable than large ones; some labor under the mistaken notion that to make farming profitable, they must till a great quantity of land; small farms well tilled, will produce more than twice the quantity poorly tilled; the expenditure in labor, manure, &c., will be proportionably increased with the quantity of land tilled. It is true a large farm *can* be made as profitable as a small one, providing it is as well cultivated, yet few farmers can afford to till a great farm as well as a few acres. The greatest gain from the least land is generally from the garden, and if all land were as well cultivated in proportion to the quantity, it would be equally as profitable.

Suppose all the land in Canada which is cultivated, and of the same original quality as that in the neighborhood of our largest cities, were made to yield an equal produce, it would provide food for ten times as many inhabitants. Farms should be well fenced; it costs more to keep poor fences in repair than to build good ones at first; besides often losing grain, making bad neighbors, unruly animals, &c.

Farmers should, if possible, raise their own seeds, and not depend on the merchant or seed store; they can raise their own cheaper, and always should, if possible, unless they wish to purchase new or improved kinds.

A farmer ought to be economical with regard to the situation of his dwellings; they should be conveniently situated as regards the farm, so that too much time will not be lost in going to and from work. A commanding situation for a dwelling house should, if practicable, be selected both for health and appearance. Shade trees should be cultivated; they adorn our

residences, and afford shelter from the scorching rays of the sun in summer, and from the cold blasts of winter.

Good farming implements should always be provided. Often a hired man will not earn half as much in consequence of bad tools, and the employer may lose as much in a short time as would purchase the required implements.

It is good economy to cultivate the soil properly; much is lost by some farmers in consequence of poor tillage; the ground is not sufficiently pulverised, the plough and harrow are used too sparingly, the ground becomes infested with weeds and thistles. Such farmers do not consider that a crop of weeds costs as much as a crop of grain, and exhausts the soil in as great a degree. In consequence of such treatment the land yields but a scanty crop; where upon the same soil, by proper management, a bountiful crop might have been raised instead. Seventh,

OUR PRESENT POSITION AS AGRICULTURISTS.

When we view the rapid progress the arts and sciences are making in different parts we are not at all surprised that Agriculture, the most important of all pursuits, has many innovations. Many excellent improvements in Agriculture have been made since the one handled plough was used; yet we consider it has not kept pace with other sciences; but it is gratifying to know at the present day it is becoming more popular; men of rank and wealth are using various means for the promotion of this science; formerly it was thought by many as too low a calling, something beneath their notice; but happily for Canada this sort of people is becoming scarce, and most are anxious and willing that it should be encouraged.

It may be asked, why are not farmers in this country in general, more popular and intelligent? One reason may be, there is not enough attention paid to education; if we wish to maintain our position in society, we must not be content with a very limited education. All will agree that mental training and professional study are deemed necessary to qualify a man to be an officer in the army, a minister, lawyer, or physician, but the agriculturists are considered by many to need no particular knowledge of the composition and capabilities of the various soils which they cultivate; but happily for Canada many of her yeomanry are beginning to know what changes the plough, harrow, and hoe have effected, and if her sons were properly educated, agricultural schools established, and honest manual labour united with intellectual culture, agriculture would soon occupy a higher position.

The farmer must read and study nature's laws not to keep changing his systems, but endeavouring to improve in them; he ought to know

what farm implements are best calculated to ease labour and do the greatest amount of work with the least expense, and what improved breeds of domestic animals are most profitable. All these he can ascertain by taking a good agricultural paper, and for the small sum of five shillings per year can realize more profit than would pay for a dozen such periodicals. It may be asked how can a labouring man find time to study? Who that follows his occupations with industry and uses his earnings with economy does not find time to study? Suppose but one hour of the day should be devoted to intellectual culture what an amount of knowledge would be gained in the course of a natural life. Eighth,

THE INFLUENCE AGRICULTURISTS HAVE UPON SOCIETY BY BEING EDUCATED.

No class of society in the world is superior to the farmer in natural talent or ability, and when we see these properly cultivated we see an enlightened and happy people.

Contrast the position of the New England States, Scotland, and some of the nations on the Continent of Europe, with those of Asia or Africa, and we discover a vast difference; in the former countries agriculture is encouraged, their yeomanry are taught the first principles of the soil, and to know that agriculture is the most honorable pursuit, the most free from crime, and the most sure way of obtaining a livelihood; in the latter Agriculture is neglected, education is in a backward condition; and the people are in a state of idolatry and superstition. Ninth,

AGRICULTURE IMPROVES US MORALLY, MENTALLY, AND PHYSICALLY.

Nature's works afford encouragement for improving our moral powers. If we study them we see the design and wise construction of the plants and vegetables which clothe and beautify our farms, and must recognize a Deity in every plant and flower.

Agriculture is attended with less vice than any other pursuit according to the numbers engaged in it. The temptations to youth are far less in the country than in cities and towns. The examples and precepts of many in such places are far more pernicious than among agriculturists.

Where a population is thin, the opportunity for boys to collect together for misconduct is more difficult than in public places, where we see them leagued together, and vice in all its shapes is so often seen, and many continue their evil course to manhood and through life.

Where will we see as many idlers without any useful employment, who live by their wits and are endeavouring to gain a livelihood dishonestly as in populous cities?

Farmer's sons are generally kept at some useful employment or at school, and should they have a disposition for crime the temptations are not so frequent.

The sobriety of the father, the economy of the mother, the devoted labour of the son, the chastity of the daughter, these, these are the fruits of glorious agriculture. Our mental acquirements are obtained by action, and those who are shut up in their studies from month to month and almost excluded from the pure air which is so necessary to life, cannot succeed in any great object as well as he whose occupation is often in the open field, where the face of nature is arrayed in beauty and splendour. In the cultivation of the soil he sees many objects calculated to increase the understanding and expand the mind. Labour in the open air operates favourably in promoting health, and is an auxiliary to vigor and strength of body. Tenth,

IT IS THE MOST INDEPENDENT AND USEFUL PURSUIT.

That pursuit which gives the greatest amount of enjoyment together with the ease with which it is attended, to make it profitable and a means of preserving health, should be acknowledged to be the best adapted to the pursuits of life, and it is generally admitted that agriculture embraces all the advantages above enumerated.

Who possesses as great an amount of the solid comforts of life as the farmer? No fears of broken banks or failures in business disturb his mind, he fears not the change of foreign or domestic markets: while the merchant or manufacturer may be ruined in the reward of his labor, and the mechanic may be essentially injured by the failure of those manufacturing or commercial interests on which his whole livelihood depends. The farmer has nothing to fear from such a source, his capital is invested in that which is more permanent, in the solid earth; he draws on a fund which seldom fails to pay his just demands, providing he is industrious and economical, though his profits may be lessened by the failure of crops and other causes, yet they will never be wholly suspended, for he remembers the promises made that seed time and harvest should continue.

Although all farmers are not equally prosperous, it must not be inferred that agriculture should be lessened in public estimation. If a person does not succeed well in this pursuit it is generally owing to himself.

It is a rare occurrence to see an intelligent, industrious farmer, who tills the soil wholly for a livelihood, who is not only in good circumstances but gaining in property. There is no profession or trade but what at certain times is not as encouraging as at others, but the least so with the

farmer. He has the means of living within himself in a greater degree than any other class of the community, as he wants fewer articles from other sources, and in such proportion is the more independent. It is to the farmer all other classes look for their bread. Upon this depends every other pursuit; it is the mainspring of every nation and gives character to any country. It is confined to no party and benefits the whole human race. Although the merchant, manufacturer, and mechanic are necessary in their several occupations and callings to complete the order of nature, yet the farmer stands high over all these, he is lord of the soil, he can look to his grain loaded with its golden burden, and his orchard bending with fruit, and exclaim, these are mine, the result of my labour and care, a degree of satisfaction is enjoyed by him which the professional man seldom knows.

In conclusion I would say I hope soon to see Agricultural Schools established in suitable places, where physical exercise may be united with mental culture, where farmer's sons may gain a knowledge of the various soils which produce the means of subsistence, for if we expect the rising generation who are destined to be agriculturists to acquire a thorough knowledge of practical agriculture, the best plan ought to be devised in that which is most applicable for agricultural practice.

May our Agricultural Societies, yearly exhibitions and premiums awarded, all tend to call forth talent and invite industry, and give us renewed courage to persevere in so honourable a cause, and may it be said that the United Counties of Leeds and Grenville have not been outdone in other parts of the world, in agricultural improvements, thus elevating our position as farmers, and becoming, what is within our power to be, an intelligent, wealthy, and free people.

SINGULAR PHENOMENA.—A very curious incident took place in the vicinity of Lyons, France, which is worth being noticed. A regiment of lancers were returning to their barracks during the rain, when the Colonel, looking at his soldiers, remarked, amidst the fog, that all the lances of his men were surmounted with a light of a blue color. It was electricity, and an immense danger threatened the whole regiment, when, with remarkable presence of mind, he suddenly ordered all his soldiers to point their lances in the ground, and immediately, as if by enchantment, a terrible detonation took place—the electric fluid had disappeared into the ground. Fortunately, the wood of the handle was not a conductor of electricity.

Promises made in time of affliction require a better memory than people commonly possess when they reach prosperity.

Slanderers are like flies that leap over all a man's good parts, to light upon his sores.

MEETING OF THE BOARD OF AGRICULTURE.

A meeting of the Board was held in one of the rooms of the University, in this city, August 14th, 1852. Members present—E. W. Thomson, Esq., Chairman; Hon. Adam Ferguson, Mr. Sheriff Ruttan, J. B. Marks, Esq., R. L. Denison, Esq., and the Secretary. T. C. Street, Esq., M. P. P., was also in attendance, by special request, as President of the Agricultural Association of Upper Canada.

The Minutes of the last meeting having been read and confirmed, the Secretary read a letter, containing several suggestions, from John Harland, Esq., of Guelph, who was necessarily engaged at home in harvest operations. Mr. Harland observes, in reference to some Australian Barley and Wheat, and Russian Oats, which had been committed to his care:—

“I took care to plant the Barley and Oats which were confided to me by the Board. The Oats look promising, but the Barley, although planted in a most favourable situation, is absolutely *red* with rust, and I fear will be useless. I do not see any other Barley in the neighbourhood similarly affected. I am preparing a piece of land whereon to dibble the wheat.

The Secretary also read a letter, dated London, England, from John Arnold, Esq., who has manifested much interest in the introduction of sugar-beet manufacture into Canada. The following is a copy:—

LONDON, July 18, 1852.

DEAR SIR,—

I am just returned from the great Agricultural Show at Lewes, where I saw much to admire, particularly among the Agricultural Implements. I did not, however, feel justified in forming any opinion as to their utility, particularly in Canada, till I read this morning the testimonials in favor of Bentall's Broadshare Plough, and which pamphlet containing them I now forward by the same post as this letter.

I could not help thinking how extremely useful an instrument it would be in Canada, particularly upon pea stubble, where our time is so short, and six acres a day may be thoroughly cleaned by it. I cannot resist the satisfaction of sending one to Canada, and at the same time accompanying it with a smaller machine, being the Mangel Machine and Potato Plough, which is of small cost.

If the Agricultural Society of Canada like to take these implements at cost and charges, they will be placed at their service—if they should

think proper to decline, I shall very readily keep them on my own account. I shall do my endeavours that they arrive in time for your great Exhibition in September.

With regard to the Beet Root Sugar, I have had an interview with the Secretary of the B. R. S. Factory in Ireland—the result of which has been by no means encouraging—as he thinks the price of labour would be too high with us to make it profitable. It would require two gangs of men—many of whom must be skilled artizans—for the works are continued night and day. This opinion has discouraged me from proceeding further—at the same time, the question is still open, whether it might not be advantageous to do as Mr. J. Hespeller proposed, to go over to Germany and make himself acquainted with the mode adopted by the farmers there.

I remain, Dear Sir,

Yours truly,

JOHN ARNOLD.

Professor Buckland.

Resolved—That the Secretary communicate the thanks of the Board to Mr. Arnold, for the information and offers contained in his communication; and that a decision thereon be left to the Committee on Implements, at the approaching Exhibition.

The Chairman submitted to the Board a letter which he had received from the Hon. Malcolm Cameron, of which the following is a copy:—

AGRICULTURAL OFFICE,

Quebec, 29th July, 1852.

SIR,—

I have the honor to enclose a copy of a letter which I have addressed to the Lower Canada Agricultural Society recommending to their consideration the Act 14 and 15 Vic. chap. 127, which appears to have given general satisfaction, it being of very great importance to have unity of action and one general system throughout the Province.

There are, I believe, some amendments to that Act contemplated by those who took the greatest interest in the subject at its passage, and I, therefore, through you, beg to call their attention to it now, so that any suggestions or amendments may be transmitted to this office at as early a day as possible.

I observe that Township Societies are not corporate bodies with power to hold real estate. I should wish to be informed if it is considered desirable that they should become so. And, I am further anxious for the views of the Board on the subject of Government aid, and the best means of making it efficient.

From all sources of information within my reach, I am not impressed with the advantages to be derived from Model Farms, but consider that Agricultural Teachers, and Scholarships, and

Itinerant Lecturers, would be more likely to awaken an interest in agricultural improvements.

I have the honor to be,

Sir,

Your obedient servant,

MALCOLM CAMERON.

E. W. Thomson, Esq.,
Chairman, Board of Agriculture,
Toronto.

[Copy.]

AGRICULTURAL OFFICE,
Quebec, 5th July, 1852.

SIR,—

I have the honor to enclose a copy of the Act 14 and 15 Vic., c. 127, which provides for the organization of Agricultural Societies in Canada West.

This organization has been found to work well, and with some amendments to be proposed at the ensuing session of Parliament, will, I believe, be very satisfactory.

As the Government has established this Office with a view to condense and arrange for practical use all the statistics of Agriculture, to attend to the Agricultural interest in the Executive and Legislative bodies, and to aid, by every possible means, its full development, I am most anxious to have such an organization of the Agricultural Societies of Canada as will enable me to correspond with one central Association in each section of the Province, which shall be in constant communication with every part of that section, and prepared and authorised to make such recommendations to this Office as it may seem best on behalf of the Agricultural interest.

I therefore have the honor respectfully to suggest that you submit to the Lower Canada Agricultural Society, the Act now forwarded with a view to the adoption of the principle in this part of the Province; and if such should be resolved upon, I will be glad to hear from you at your earliest convenience, so as to enable me to prepare such measures as may be necessary before the middle of August next, when Parliament is likely to meet.

I have, &c.

[Signed] MALCOLM CAMERON,
P. E. C.

P. E. Leclerc, Esq.,
President, L. C. Ag. Society,
St. Hyacinth.

After much deliberation on the several subjects embraced in the above communications, the Board was of opinion that, uniformity of action, as far as varying circumstances would admit, between the Agricultural Societies of both sections of the Province, would be mutually advantageous, and that every facility should be given to form a friendly and more frequent communication between the two great Societies of the Upper and Lower Provinces, and that the establishment of an

Agricultural Department in the Government, may be made subservient to this and other important purposes. It was agreed to recommend to the Minister of Agriculture, and through him to Parliament, the following modifications of the Agricultural Statute: To make each County, belonging to "United Counties," separate and independent for Agricultural purposes, under the Statute, whenever desired by such Counties. To reduce the present sum of £17 10s., required to be raised by Township Societies before they can organise, to £10. It was also recommended that Township Societies should be placed on the same footing as County Societies, as regards incorporation. With reference to the main principles of the Agricultural Society, it was deemed inexpedient at present to interfere, as further experience was required of their practical operation. The Board was decidedly of opinion, that uniformity of action among all the Societies, and regular returns and reports, made at stated periods, together with a prompt and cheap mode of publication and wide diffusion of the same, are objects of the highest importance to the Agricultural interests of the country.

The Board after giving the subject of Model Farms their consideration, agreed with the opinion expressed by the Minister of Agriculture, that they would be found, in the present state of the country, too expensive, and would frequently fail in securing the confidence of practical farmers. It was thought County Municipalities might be advantageously empowered to grant premiums for the best cultivated farms in their several jurisdictions; also, that the Board would constitute the best authority for establishing and controlling Model Farms, whenever such farms should be decided as desirable, by the expression of public opinion, in any County.

The Secretary was instructed to prepare a Report on the rise and progress of the Provincial Agricultural Association; also to communicate with the Municipal Authorities of the Town of Brockville, for the immediate payment of the grant made by that Body to

the funds of the Association, last year. It was also agreed to invite the Office-bearers of the Lower Canada Agricultural Society and those of the New York State Society, to the approaching Annual Exhibition, in Toronto. The President of the Association, T. C. Street, Esq., M. P. P., was requested to invite His Excellency, Lady Elgin, and suite, to honour the same with their presence.

It was resolved that the salary of the Secretary should be £100 per annum; that of the Treasurer, £50 per annum; and that the Secretary be authorised to employ what extra assistance he may require in the discharge of his duties, at the expense of the Board.

After the disposal of a number of details, referring principally to the Exhibition and the state of Finance, the Board agreed to adjourn to Monday, September 20th, to meet in the Secretary's office on the Show Grounds, at 2 o'clock P. M., when a full attendance is particularly desired.

The Agriculturist.

TORONTO, SEPTEMBER, 1852.

THE APPROACHING EXHIBITION.

The prospect of a great and successful Exhibition of the industry and resources of Upper Canada, to take place in this city, on the 21st to the 24th inst., becomes every day more encouraging. Toronto is most desirably situated for such a gathering, and the Corporation has nobly sustained the high character and public spirit of the Queen City of the West, by voting an additional grant of £600, to the funds of the Association, which, added to a previous grant of £200, makes a total sum of EIGHT HUNDRED! All that is now required is the zealous co-operation of the country, and as a moment ought not to be lost we trust that no indifference will any where be felt in sending *materials* for the Exhibition, and in supporting it by an attendance, which, in point of character and numbers, will demonstrate that Canadians are in right earnest

in promoting the high objects which the Association seeks to secure.

The grounds are most conveniently situated, north of Queen Street, adjoining the College Avenue, and the operations of putting up the fences, buildings, &c., are rapidly advancing. For the information of our readers, we subjoin a condensed programme of the proceedings of the Show-week.

MONDAY and TUESDAY, the 20th and 21st Sept., will be devoted to the entering of Stock and Articles for the Exhibition and the arranging of the same. All articles should be entered in the Secretary's books, not later than *Tuesday*. Such Articles as are entered on Wednesday morning, before 9 o'clock, when the books will *finally close*, will be subjected to a charge of 5s. each.

None but members can exhibit, except *Ladies*. Badges of membership can be procured of the Treasurer at 5s. each, admitting the purchaser, his wife, and children under fourteen years of age, to the Exhibition, during the week, without additional charge.

The Judges will breakfast on the Grounds, at 8 o'clock, on WEDNESDAY, and Members will be admitted at 2 o'clock, P. M.

The Public, or non-members, will be admitted during the whole of THURSDAY and FRIDAY, 7½d. each admission.

Arrangements will be made for addresses and discussions on subjects relating to the Agricultural interests of Canada, on the evenings of *Wednesday* and *Thursday*.

THE PRESIDENT'S ADDRESS will be delivered on the Grounds on FRIDAY, at 2 P. M., when the awards of the Judges will be proclaimed.

Articles for the Exhibition from the United States, will be admitted *Duty Free*. Steam Boats will charge only half their usual rates during the week, and a list of Hotels, Taverns, and Boarding Houses will be prepared for public inspection, with their respective rates of charge, which, we are glad to be informed, will not exceed that of ordinary occasions.

We must not omit to mention that MR. WHEELER, of this city, will be prepared to

supply *Life Members* with a Chain and appropriate SILVER MEDAL at the very low charge of *Two Dollars each*, and we hope that a sufficient number will avail themselves of the opportunity, (which they can do by giving in their names to the Secretary) so as to insure Mr. Wneeler against pecuniary loss.

THE LATE THOS. BATES, ESQ., AND HIS
CELEBRATED TRIBES OF SHORT-HORN
CATTLE.

We have thought that some brief notice of this enterprising and highly successful Agriculturist, would be interesting to a large portion of our readers, and we now proceed to redeem a promise made in a previous number. We are mainly indebted for the facts which follow to a memoir of Mr. Bates, which appeared in the *Farmer's Magazine*, vol. 31, and to some private memoranda, with which we have been favored by the Honorable Adam Fergusson, of Woodhill, an early and intimate friend of Mr. Bates. Mr. Fergusson has in his possession several excellent specimens of Bates' much admired *Duchess* tribe of the pure Short-Horn, which we hope to see at our approaching Provincial Exhibition; and we have great satisfaction in directing the attention of such of our readers as are desirous of procuring the best blood of this celebrated breed to be found on this continent, to the auction sale of George Vail, Esq., of Troy, N. Y., announced in another column.

Mr. Bates was born at Matfen, Northumberland, in the year 1775, and died July 26th, 1849. He removed with his father, at an early period, to Haydon Castle, near Corbridge, where he prosecuted his school studies for several years, and afterwards completed his education at the University of Edinburgh.

His commencement as a farmer may be reckoned from his occupation of one of his father's farms, called "The Eeles," on the banks of the North Tyne, near Hexham. But he soon removed, in the year 1800, to Halton Castle, which he occupied for 21 years; thence to Ridley Hall, on the banks of the South Tyne; and at length into Yorkshire, to the Kirkleavington Estate.

The attention of Mr. Bates was first directed to the breed of animals, with the progress, and, we might almost say, perfection, of which, his name is so honorably associated, by the late Mr. Waisted, of Burdon, who was allowed to be one of the best judges of Short-horns of that period.

It was on the farm of Halton Castle that Mr. Bates commenced his career as a breeder—a career which afterwards proved so successful, honorable, and enduring. Of the different races for which he became so widely celebrated, the "*Duchess*," "*Red Rose*," or "*Cambridge*;" the "*Oxford*," and the "*Waterloo*," are the most appreciated. The first of these, the "*Duchess*," has long been regarded, by the most competent and disinterested judges, as containing the finest specimens of Short-horn; and from it Mr. Bates derived a progeny, which brought him the great bulk of his prizes at the largest exhibitions for stock in the United Kingdom. As time and experience constitute the correctest test of matters of this kind, it is only necessary to mention that he continued in unbroken succession this race of cows, so far as to number them to *Duchess 65th*!

The origin of his *Duchess* stock has been related as follows:—A cow bought, by private contract, of Mr. Charles Colling, in 1804, so pleased Mr. Bates, that at Mr. Colling's sale in 1810, he determined to have, at any price, a heifer, then two years old, called *Duchess*, a grand-daughter of the cow he first possessed. *Duchess* was knocked down for the sum of 133 guineas. She was by the celebrated *Comet*, her dam by *Favorite*, grand-dam *Duchess*, by *Dairy Bull*, &c.

"From this animal, first crossed by a son of the old cow, came that produce which has earned for herself and owner not even a local or European, but really a *trans-atlantic* celebrity.—Still, however, with the foundation laid at Halton, it was not until Mr. Bates' purchase of, and removal to, Kirkleavington, that the fame of his stock could be said to be fairly established, or that he could command those prices and prizes, of which we shall proceed to give rather a review than a recapitulation."

Mr. Bates does not appear to have exhibited at any of the shows for upwards of a quarter of a century. At the first Great Yorkshire Agricultural Meeting, in 1838, he was very successful, and in the following year at Oxford, being the first show of the Royal Agricultural Society of England, he carried off four prizes, winning every thing for which he entered. His after career was one uninterrupted course of the most brilliant success, both at the great National Exhibitions, as well as at the chief Provincial Shows. His "*Red Rose*" or "*Cambridge*" tribe, both bulls and cows, were eminently successful at the Royal Society's Meeting at Cambridge, in 1840. His bulls, "*Duke of Northumberland*," "*Duke of Cambridge*," "*Cleveland Lad*," &c., are too

well known to require particularising in this place.

We shall here make room for an excellent article, copied from the *Farmer's Magazine* for June, 1850, by a writer perfectly competent to appreciate Mr. Bates' merits as a breeder; and we shall have occasion hereafter to say something of him in the capacity of a practical cultivator, or farmer.

REMARKS ON THE KIRKLEAVINGTON HERD OF SHORT-HORN CATTLE,

*Which were sold by auction by Mr. H. Stafford, on Thursday, May 9, 1850, by John Ewart, Land Surveyor, etc., Newcastle-upon-Tyne.**

The sale of this celebrated herd took place on Thursday, May 9, 1850, in presence of a company, which, at the lowest estimate, could not be less than five thousand persons, including nearly every breeder of short-horn cattle of note in the United Kingdom, as also breeders from the continent of Europe, and from the United States of America. It may with confidence be maintained that on no similar occasion has so great an interest been excited amongst the breeders of this variety of the ox, so justly the pride of our country, as on that referred to above. And well, indeed, did the herd deserve the far-extended fame which attracted such a mighty gathering on the occasion of its dispersion, to be the *nucleus* of new, or to enrich collections already in being, in our sea-girt isles, in Europe, and in the great western quarter of our planet, beyond the Atlantic ocean.

To criticise in print, a herd, whilst it remains the property of the breeder, is obviously an improper intermeddling with private property, by which no good purpose can be answered, but which may be productive of controversy, liable to excite vexation. When, however, a herd is dispersed, as on the occasion under consideration, the reason for withholding an opinion of its merits, and of those of the several animals of which it is comprised, ceases. In fact, an event in the annals of rural affairs of such interest and importance as the sale of the Kirkleavington herd, not only demands a more permanent record than the ordinary notice in the columns of a newspaper, but now that the cattle in question no longer form a distinct herd, a monument of the incident becomes useful; and no repository for such can be so fitting as the pages of the *Farmers' Magazine*. The herd in question, comprising forty-eight cows, heifers, and heifer-calves, and twenty bulls and bull-calves, late the property of Thomas Bates, Esq., formerly of Halton Castle, afterwards of

Ridley Hall, both in Northumberland, and lastly of Kirkleavington, near Yarm, in Yorkshire, displayed an eminence in every point of excellence, which has been very rarely attained. In a combination of those qualities which constitute excellence in the short-horn variety of cattle, it may be asserted with confidence, that the Kirkleavington herd, at the time of its dispersion, was unequalled by any other in existence. Magnificent size, straight and broad back, arched and well spread ribs, wide bosom, snug shoulders, clean neck, light feet, small head, prominent and bright, but placid eye, were features of usefulness and beauty which distinguished this herd in the very highest degree; whilst the hide is sufficiently thick to indicate an excellent constitution, its elasticity, when felt between the fingers and thumb, together with the soft and furry texture of the coat, evinced in an extraordinary degree throughout the herd, excellent quality of flesh, and disposition to rapid taking-on fat. In the sixty-eight head of cattle, not one could be characterised as *inferior* or even as *mediocre*—all ranking as the first class animals; and when an idea of inferiority arose, it was only in reference to a comparison with some of this splendid herd, which, from their most extraordinary excellence, may demand especial notice.

The herd consisted of six families:—The Duchess the Oxford, the Waterloo, the Cambridge Rose, the Wild Eyes, and the Foggathorpe which are here enumerated in succession according to the prices which each realized at the sale; a synopsis of the pedigrees, prices and purchasers, being subjoined, to which it will be sufficient to refer for such particulars.

Of the Duchess family, which originated with Young Duchess, a two-years old heifer, got by Comet, dam by Favourite, and purchased by Mr. Bates, at Mr. Charles Colling's sale, in 1810, for 183 guineas, were four cows, three heifers, one heifer-calf, four bulls, and two bull-calves; the first of which that demands especial notice, is the Fourth Duke of York. This animal, now the property of Earl Ducie, is the *beau ideal* of bovine excellence. His magnificent size, and perfection in every point of excellence, entitle him to be considered as the brightest gem of the herd; and if not the very best bull in existence, he certainly cannot be surpassed. Grand Duke, Duchess 54th, and Duchess 55th, 59th, 61st, 62d, and 64th, all of the same family, are the finest imaginable specimens of the short horn tribe. Next in order is the Oxford family, consisting of four cows, two heifers, four heifer-calves, and three bulls of which Oxford 5th, Oxford 11th, and Second Duke of Oxford, and all animals of extraordinary excellence. The Waterloo and Cambridge Rose families were less numerous than the two preceding. The whole of the animals composing them possessed great excellence, although inferior to those previously noticed. The Wild Eyes, the most extensive family in the herd, consisting of twenty-five head, in which were nine cows, seven heifers, two heifer-calves, four bulls, and three bull-calves; and of which Balco, a remarkably fine yearling bull, and two three-year old heifers, Wild Eyes 22d and 23d, were prominent lots in the sale. The only remaining family now to be mentioned, is the Foggathorpe, descended from a cow of that name, bought by Mr. Bates, for which he gave one hundred guineas when she was of so advanced an age as not to be likely to breed. This family comprised two cows, one heifer-calf, and four bulls; of which Ebor, a yearling, sold for 90 guineas.

The sale of this extraordinary herd realized a total amount of £4,558, 1s., sterling—equal to \$20,238; and, great as this sum may seem, it is not in any degree extravagant to suppose that, had the identical animals been in existence in 1839, and put up for sale after Mr. Bates' unparalleled triumph as a breeder of short-horns, at the show of the Royal Agricultural

* We observe in Mr. Vail's Catalogue the following remarks appended to the foregoing article, which will be read with interest by breeders on this side the Atlantic, in the prospect of the dispersion of Mr. Vail's herd.

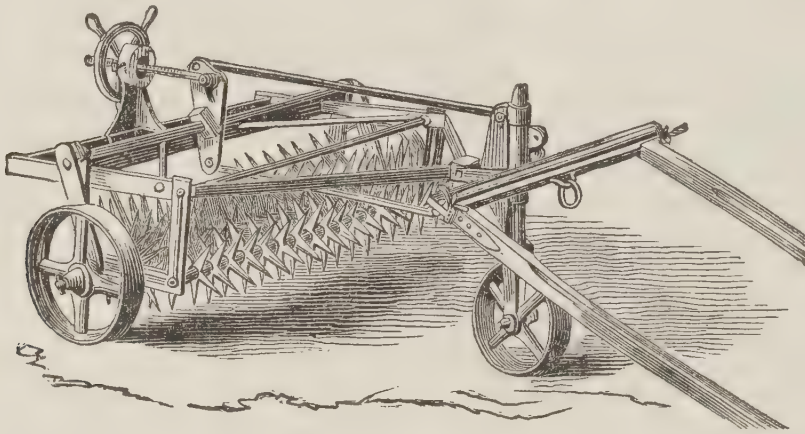
"It may not be inappropriate to state that one of the four premium animals alluded to in the above extract, was the Oxford premium cow, and at the time of her exhibition she was in calf, and on the 24th of October, following, she dropped the bull-calf, Duke of Wellington, which I purchased, and he came out the next spring; and the heifer Duchess, which came out with him was sired by one of the other premium animals alluded to, viz: the celebrated bull, Duke of Northumberland, and my premium bull, Meteor, was the first offspring of these two valuable animals."

Society of England at Oxford, in obtaining four principal prizes with the only four animals entered by him on that occasion, the sixty-eight head of cattle would then have realized double the sum they did on the 9th inst. In support of this opinion, the writer can state, upon undoubted authority, that so great was the estimation in which the premium animals referred to were held, that an offer of 400 guineas each for the premium cow and heifer was refused; and that for the bull, Duke of Northumberland, Mr. Bates might have had almost any sum he might have asked; but he considered the animal valuable above all price. When the circumstances of the great yearly increase and diffusion of short-horns, of the very first class, in every part of the kingdom, for many years past, and the crushing influence which Free-Trade policy must have on the price of cattle, are considered, the proceeds of Mr. Bates' herd fully corroborates the writer's opinion

of its being the most excellent ever submitted for sale by auction.

THE NORWEGIAN HARROW.

At the last meeting of the Board of Agriculture, J. B. Marks, Esq., of Kingston, submitted a sketch of the above implement, and we have since received from him the following communication. We had a cut of this harrow in the hands of our engraver previous to seeing Mr. Marks' plan, which, though in principle the same, yet it differs in several of its details from the one here presented from an English publication.



BARRIEFIELD, KINGSTON,
21st August, 1852.

DEAR SIR,—

The plan of the Norwegian Harrow, which I submitted to the Board of Agriculture at its last meeting in Toronto, on the 4th inst., was kindly furnished by our friend Lieut. W. R. Davies, Royal Navy, Carmarthenshire, North Britain.—He says it is getting much in use in that country. It will do the work of three common harrows, and much better, in heavy or clay soil. With a strong team of four oxen or horses, it will do astonishing work. Should it not at first go sufficiently deep, put a log of wood or some other weight on the top of the frame, and it will then break up into bits the thickest furrow. Many farmers use no other, but finishing off with a light common harrow. When seed is sown, it gives a smoother surface; its novelty of rollers is very curious, and worthy the attention of our Provincial Agricultural Society. Can you induce some of our best implement makers to make one for the Society?

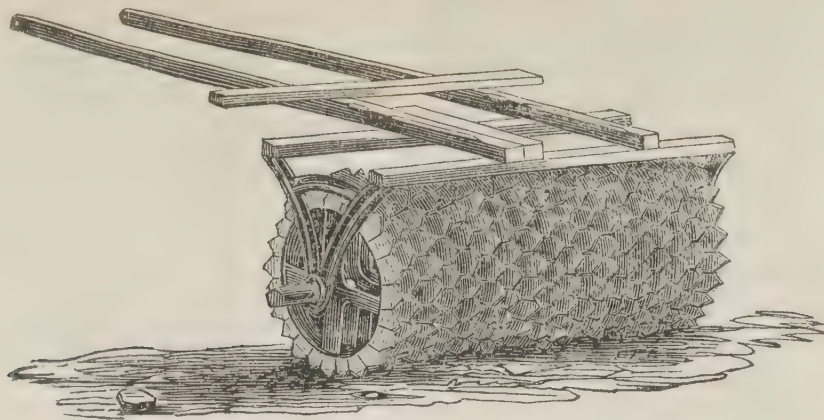
I remain yours very truly,
J. MARKS.

To Geo. Buckland, Esq.,
Secretary, &c. &c. &c.

This novel implement was originally imported into Scotland from Norway, by Mr. Frere of Edinburgh, but it has subsequently undergone several changes and improvements. The acting part of the machine has a frame containing four horizontal spindles, on each of which is fixed a set of cast iron

bosses, with teeth projecting from them like the rowels of a spur. These teeth revolve with the spindles, those on one spindle interworking with the others, so that they severally clear and clean each other. The effect in tearing and breaking down the soil is thorough and perfect, without any clogging of the teeth or derangement of the working parts. Its depth of working is readily adjusted, and the wheels are not essential, though often of much convenience for the purposes of locomotion. As a mere clod-crusher it is no doubt inferior to Crosskill's—it leaves the ground light and loose, whilst the clod-crusher gives to it firmness and consistence. The Norwegian harrow acts to a considerable extent as a clod-crusher, while it penetrates the land to a considerable depth, and tears the surface to pieces. For preparing land for wheat it is particularly adapted, consolidating the soil while it prepares a good surface tilth.

The price of this implement in England, covering a width of four feet, is about £14; but with two axles, as in the plan submitted by Mr. Marks, the cost would be considerably less. It is much to be desired that some means should be taken to introduce this implement into Canada, an object we hope soon to see accomplished.



CROSSKILL'S PATENT CLOD CRUSHER ROLLER.

This is, beyond question, the most efficient Implement which modern mechanical skill has furnished the farmer for reducing to a fine condition, the driest and most stubborn soils. It consists, as shown in the figure, of a series of cast metal rings, or roller parts, placed upon a round axle, and acting independently of each other, thereby producing a separate action in turning round upon the headlands, without moving up the soil, and effecting a self-cleaning movement. The ordinary size of the roller is six feet and a half in width, with single shafts, and weighs about 27 cwt. The roller parts are 2 feet 6 inches in diameter, with indented or serrated surfaces, having a series of inner teeth at right angles to the centre of the axle, and pointing directly perpendicular into the clods, more effectually pulverising the roughest land into a fine and even surface mould.

This implement has been aptly termed "a roller and harrow combined." It has been used with much advantage on young wheat in the spring, when the soil requires consolidation, and is said to prevent the ravages of the wire-worm in many situations. Its high price, (varying, according to size, from £15 to £25 sterling) will form the principal hindrance to its adoption in Canada. We have seen an imported one on the farm of Messrs. Taylors, Paper Manufacturers, near Toronto.

DISTINCTION BETWEEN THE WHEAT-MIDGE AND CORN WEEVIL.

MR. EDITOR,—

A correspondent in your last number (Mr. Hutton) mistakes the larva of the wheat-midge, (*Tipula tritici*, Kirby,) *Cecidomyia tritici*, La-

treille,) for that of the corn weevil, (*Curculio granaria*, Linn.) The wheat-midge, the larvae of which is so destructive to the ear of wheat before ripening, is a dipterous insect, whilst the weevil, which is injurious to the grain in the granary, is a coleopterous insect. This distinction is generally made by Entomologists, but seldom regarded by farmers. (Vide Kiellar, and Dr. Fitch in N. Y. Transactions, &c.)

Yours, &c., A. K.

THE NORTH WALES CATTLE.

SOUTH CAYUGA, NEAR DUNNVILLE,
August 16, 1852.

To the Editor of the Canadian Agriculturist.

DEAR SIR,—In late numbers of your valuable Agricultural Magazine, your correspondents have said much to prove which kind of cattle took the most prizes at Smithfield, or other shows; but I do not think they have proved what kind give the farmer the *most profit* for raising, in this country, with the *least outlay or expense*, which I think an object; and as the avarice of manufacturers, merchants, and traders, do not seem to allow a profit to any one but themselves, I beg leave to say a few words upon that little item on cattle.

It is said, that, with free trade, low prices of grain, the farmer cannot afford to give ten dollars a-month, and board, to cut hay, mix bran and linseed tea for cattle of a tender kind, such as Durhams, Ayrshire, and Devonshire, particularly as there are kinds in this country that require neither of these things to be done. I do not like to see so many cattle come out of these cold winters, with hips a man might hang his hat upon; the ribs bare, and the deep furrow of poverty down the thigh. They often yield only the skin to the owner. I observe that native plants, trees, fruits, and even men, thrive much better than foreign ones here. But I have seen a kind of cattle lately that took my attention, and I wish to direct the attention of some of your readers to them, particularly our Dutch neighbours, whose pigs, sheep, and oxen, have long been too inferior, and who I am persuading to subscribe to your Maga-

zine of Agriculture, and improve their stock and general system of farming; and I hope to succeed, as it is said to be much easier to overcome a want of knowledge, than to overcome prejudice. When I lived in England, I fattened many Durham oxen with oil cake, and other artificial food, with great loss, but I usually bought a number of North Wales beasts, which were fed through the winter with straw, and a little hay, and then with grass in the summer, which paid much better than the stall-fed Durhams. You are aware, Mr. Editor, that the North Wales beasts are the hardiest constitution animals brought into the English cattle-fairs, and, I think, could bear this climate well, particularly as his skin, by nature, is thick enough to bear the blast of their mountains, and makes the heaviest and best leather carried to Leadenhall market, and gets 6d. per pound above most other kinds.

A short time since, a Mr. Naas, near Smithville, Niagara District, said to be a great grazier and butcher, from Wales, or England, imported a polled North Wales bull, (very quiet among other animals,) and with a half-bred Durham cow, seems to have bred some good, hardy cattle, and the females are said to be good milkers. I lately saw a young bull of this stock which took my attention. He came out of the last severe winter better than any other that I have seen before, although he was kept in an open yard, with two other young bulls, a year older, with horns, which allowed him nothing to eat but that which *they left of timothy hay and straw*. They do not know what bran, with cut hay and linseed tea mixed are, neither do they require it. This animal paid very well for his winter-keep, and looks better than his winter-companions (and this kind grow large enough.) I wish I could say that of others, and I hope this stock will be increased, as they suit this climate and living better than any I have seen. I am surprised that the North Wales oxen are so little known here. I think I could keep one of these animals, and three or four sheep, with the food that would keep a Durham, Ayshire, or Devonshire, or three of one to two of the other, and have them come out of the winter in better condition—both kinds fed with timothy, or clover, hay and straw.

If I can, I will prevail upon my Dutch neighbours to adopt the plan of English farming, carried out from 1800 to 1830, on clay lands, similar to these, with scarifiers, drills, harrows, and double plough, for spring-sowing, planting corn, potatoes, and making their summer fallows. These are not the times for theory and speculation, and these implements, made with wrought iron, last many years, and are not very expensive, and are always valuable. If I can put only a ten-dollar bill into the pockets of any of your numerous readers, by their perusal of these few lines, I

shall feel much pleasure in having been a little useful, and

Remain, Dear Sir,

Yours, very sincerely,

ROBERT F. COOK.

P. S.—I have seen native cattle fed entirely with straw, look as well after winter, as foreign cattle that have eat one-and-a-half or two tons of hay.

R. F. C.

QUERIES.—BEST TIME FOR CUTTING GRASS.—THE ALPACA, &c.

ORILLIA, August 7, 1852.

Editor of Canadian Agriculturist.

SIR,—I have noted down a few questions which I hope you will answer as soon as convenient :—

Is there no certain rule for the cutting of hay in this country? *The American Agriculturist* says, "Cut Timothy and Redtop when they begin to ripen their seeds. Cutting before grass is ripe, makes the roots bleed and die out."

Canadian Agriculturist, 1850, says, "All the cultivated grasses are in the best condition for being made into hay, when in blossom, and should on no account be allowed to ripen their seeds before being mown."

N. E. Farmer, 1852, says, "Grass cut after the seeds are fully formed, is much more nutritious than when cut sooner."

When cows calve at liberty, they eat their "cleaning" (after birth.) Is this a provision of nature, or a medicine?

I am not aware whether other animals have this habit.

The *N. Y. Journal of Commerce*, 1846, mentioned that a company had been formed for the introduction of the Peruvian Alpaca into the United States. Have they succeeded? and as they thrive in the west of Ireland, might they not do in Canada?

In the *Agriculturist*, for 1849, there is an extract from the *Scottish Ag. Journal*, which gives an account of a plough or hoe, capable of being drawn by a man or boy, and which enables one person to accomplish the work of five. Should not some public-spirited individual import one of these implements as a pattern? It would be just the thing for Canada, where the farmers cannot find time to cultivate their gardens.

I remain, Sir, yours truly,

C.

No absolute rule can be laid down, or acted upon, as to the *exact* time when grass should be cut for hay, since many disturbing circumstances frequently arise to modify this, as well as most

farming operations. The nutritious property of hay is found in the stalks and leaves; hence, as a general rule, the best time for cutting is when the grasses are in full bloom. If the object be reproduction, then the seeds must, of course, be allowed to ripen; and just as this process becomes matured, the stalks and leaves deteriorate for food, a large portion of saccharine and other soluble matter being converted into woody fibre, a substance comparatively indigestible and innutritious.

We never knew any bad effects arise from the propensity of cows to eat the placenta, after calving; and the disposition to do so, appears to partake of the nature of an instinct, like the licking of the calf immediately after birth. It is the general practice, however, to remove the placenta whenever practicable. We are not aware of any similar habit in other animals.

We can throw no light on our correspondent's query respecting the Alpaca. Much was said a few years ago about the introduction of this animal into Britain, but not having heard anything of it, of late, the natural influence is, that public expectation has not been realized. We have heard nothing more of the plough or hoe alluded to since the first commencement. Many new inventions of this nature will not stand the test of lengthened experience, and have consequently an ephemeral interest only.

EAST OXFORD FARMER'S ASSOCIATION.

We have much pleasure in complying with the wishes of the members of the *East Oxford Farmers' Club*, by devoting a portion of our space to the proceedings of their first meeting, as reported for the *Western Progress*, trusting that their beneficial example will be extensively copied. Farmers' Clubs are amongst the most efficient instrumentalities for raising the social status of the Farmer and advancing both the science and practice of his art.

SIR,—The pressure of matters at this busy season will be considered a sufficient excuse for not having sooner furnished the report of a meeting which was held, pursuant to public notice, in the schoolhouse near the Town Hall, on the 7th July, the objects of which will be fully explained in the opening address delivered by Mr. Alexander, the Superintendent of the Schools, in

this Township. After the meeting had been organized—

Mr. ALEXANDER rose and said,—“They were assembled here upon this occasion, as he understood, to establish a Farmer's Club, or Association, which shall have for its object and purpose the diffusion of sound Agricultural views throughout this section of the country. He (Mr. Alexander) esteemed it a privilege to be invited to take part in this movement, in which he felt a deep interest, and from which he expected important results. The most essential of these, and that which they had more immediately in view, was the introduction of a better system of husbandry—of a system which, while it would bring the farmer greater remuneration for his labour, would also prevent the deterioration of the soil. But the practical working of such an Association would be found beneficial in other respects, namely, in cultivating the powers of reflection and observation, in creating a thirst for knowledge and improvement, in conducing to the general, mental and social elevation of the community.

“As to the mode of action suggested of holding periodical meetings, either monthly or quarterly, for the purpose of discussing all questions relating to the management of the farm, he (Mr. Alexander) considered it not only thoroughly practical, but peculiarly adapted to the wants and necessities of a young country. What an animating sight it would be to see their Town Hall crowded, one evening in every month, by practical and intelligent men, assembled to elicit, by free and manly discussion, right views of the most economical methods of conducting all field operations, and of the management of the stock on the farm. One cannot suggest more certain means of breaking up all erroneous impressions which every one holds, more or less to his cost—of extending the blessings of knowledge to the many, and of calling forth a salutary spirit of emulation and enterprise in the land.

“Respecting the system of rotation most generally adopted throughout Canada, during the first seven years of settlement, the land cannot be said to sustain any serious injury until the roots are removed; but he (Mr. Alexander) would desire to mention a startling fact, which appeared in the February number of the *Canadian Agriculturist*, and which tells a sad tale of the system of farming pursued in older settled parts—in two of the Northern States. It is therein mentioned that $12\frac{1}{2}$ bushels of wheat per acre is the present average of the State of New York, that of Ohio being 16 bushels. Thirty years ago, the former averaged 30 and the latter 35 bushels per acre. By injudicious cropping, they have carried off the phosphate of lime, silica, and other fertilizing substances, without adopting the

proper means to renew them. In some sections of Canada, the same effects are observable, only in a less degree. The proper rotation of crops upon different characters of soil, would be an interesting and important subject of investigation at future meetings of this Association. But how many subjects might be named of deep interest to the good farmer? The proper management and application of manure, the selection of seed, the potatoe rot, rust, wireworm, and other evils which the farmer has to contend against; the relative proportion of stock to a given number of acres, the advantages of paying more attention to sheep and the dairy, the kinds of sheep, cows, and other stock best adapted to this climate and market, the cheapest and most expeditious methods of restoring impoverished lands, by ploughing in clover, buckwheat, &c., aided by gypsum, are some of the many subjects upon which the farmer ought to possess the fullest information. How perfectly adapted is such an Association to diffuse widely knowledge of this useful character, if all the leading settlers throughout the country would make it their pleasure and duty to head the movement—those farmers who (as Mr. Hind observes in his admirable work on Agricultural Chemistry) are annually reaping double the average amount of produce their neighbours are vainly endeavouring to obtain, and whose fields and homestead present an appearance of order and superior arrangement.—Such men, of whom there are many in every township, are of great value in their respective neighbourhoods. Such are the persons eminently qualified to lead the discussions at the meetings of this Association.

“In conclusion, he (Mr. Alexander) would desire to make a few remarks respecting the capabilities of this Province, and its many natural advantages. He might with truth say of this western section, extending from Lake Ontario to Lake Huron, that a finer tract of land is not to be found, as regarding the natural fertility of the soil, a country richly watered, with abundance of water power for mechanical and manufacturing purposes, and he might add, that although they had, elsewhere, occasional visitations of sickness, it was, upon the whole, one of the healthiest parts of this continent. Those who have adopted this land as their home have great cause to be satisfied. Upon what, then, does the rapid advancement of Canada depend? Upon the spirit of enterprise, the advantageous employment of the industrial labour of her population, upon the growth of intelligence and virtue. He would only wish to add that it afforded him more than ordinary satisfaction to find this movement emanate in a township with which he was officially connected, and that he hoped soon to see many such associations established in this county.”

At the conclusion of the above Address, a Constitution was proposed and adopted, and the following officers appointed for the current year:—*GEORGE ALEXANDER, President*; *HY. PEERS, Vice-President*; *L. C. TEEPLE, Secretary*; and *JOHN VROMAN, Treasurer*.

THE COMMITTEE.

Wm. Burgess (Reeve,) Joseph Peers, Wm. Garbutt, Wm. Peers, Stephen Cook, Wm. Paulin, sen., Wm. Chambers, Robert Vandecar, James McCallum, Peter Lampman, John Green, sen., James Faulkner, Jas Petit, Hiram Sprague, John Guild, John Rutledge, Thomas Hart, John Green, jun., Thos. Lazenby, John Leak.

The President taking the chair, the subject of the management and application of the farm yard manure and of gypsum was introduced, which led to a lengthened and interesting discussion, of which I regret not being able to give a report.

Mr. Garbutt gave a most able exposition of his views and system, dwelling particularly upon the benefits arising from turning and piling the manure in the yard, early in the season, so that it may undergo the process of thorough fermentation before being applied to the land, the principal object of which was to destroy the vitality of all the seeds of noxious weeds. When carted out on the fallow, it ought to be ploughed in with as little delay as possible. Half the best properties of manure were generally wasted from the want of proper preservation. His remarks, which were highly approved, elicited replies from Messrs. Henry Peers, Rice, Paulin, and Chambers, who gave further illustrations of their experience. All present manifested a deep interest in the proceedings, and seemed to look forward with zeal to the future meetings of the Association.

The next meeting was appointed to be held in the Town Hall, on Tuesday evening, the 24th of August, at Seven o'clock. The inhabitants of other townships are hereby specially invited to attend at every meeting. The subjects of discussion at the next meeting to be, the selection of seed, the best method of storing potatoes, turnips, and other roots, and the further consideration of the application of manure.

Hoping to be able to render a proper report of the proceedings of future meetings,

I am, &c.,

L. C. TEEPLE, Secretary.

East Oxford, 6th August, 1852.

The barbers in towns in China go about ringing bells to get customers. They carry with them a stool, a basin, a towel, and a pot containing fire. When any person calls to them, they run to him, and, planting their stool in a convenient place in the street, shave the head, clean the ears, dress the eyebrows, and brush the shoulders, all for the value of a farthing.

NIXON'S IMPROVED GRAIN DRILL.

We expected to have presented our readers this month with an engraving of Nixon's Improved Grain Drill; but the cut has not yet come to hand. William Nixon, the Patentee of this improved machine, has after several years of study and experimenting, succeeded in combining in one machine, a Grain and Turnip Drill of a cheap, simple, substantial and complete construction. One great advantage connected with this machine is the fact that it will not be easily put out of order. The only castings connected with it are one small wheel and pinion, and the other parts are square pieces of wood, which can be replaced by any mechanic.

The quantity of grain to be sown and the depth of the drill can be regulated at pleasure, and the machine is so arranged as to be immediately altered to sow every kind of grain or plaster broadcast regulating the quantity as before.

It is altered to drill turnips by merely lifting out every other beam leaving four which will be the proper distance apart.

In next number we may give further particulars in connection with this construction. In the meantime any information may be obtained by application by letter to Wm. Brown, & Co., at Roach's Hotel, King Street, Toronto.

THE CATTLE CONTROVERSY.—Mr. Parson's reply to Mr. Tye did not reach us in time for the present number. We publish entire Mr. Sotham's communication without any remarks of our own, leaving our readers to draw their own conclusions. Our time at present being otherwise wholly pre-occupied. Besides we are no *umpires* in this disputed case.

A NEW RAKING MACHINE has been invented by Mr. J. Begg, of Pickering, which will, we understand be exhibited at the approaching Provincial Fair. The drawing sent is not sufficiently accurate for engraving. We hope to give a full explanation of this implement hereafter.

BRITISH NATIONAL SOCIETIES.—We exceedingly regret that want of space prevents us this month from noticing the recent Exhibitions of the English, Scotch, and Irish Agricultural Societies; some instructive facts connected therewith we shall, however, notice hereafter.

RECEIVED.—J. Jones, Stanford; A Young Farmer; which shall receive attention in our next.

MARKETS.—The latest accounts from the United Kingdom confirm the prevalence of the potato blight to an extent, which connected with somewhat unfavorable weather for the harvest, was producing an upward tendency in the grain market. The weather in Canada has been of late, warm and dry, and the grain crops have been safely received. Wheat has not been uniformly good, and in certain localities the weevil has been very destructive. Drought too, in some places has injured the crop generally. Upon the whole, however, the produce of the year may be regarded as an average, and we hear little of the potato disease. Wheat is coming into the Toronto market freely, and a brisk business is doing from 3s 6d to 4s and upwards, per bushel.

Liverpool Markets.

Boston, Sept. 2, 1852.

The Corn market has been quiet with a decline in flour of 6d a 1s per barrel, and on Wheat 1d a 1½d per 70 lbs, in consequence of the weather again becoming favourable. Indian Corn is a shade easier. Brown & Shipley's Circular quotes yellow at 24s 6d, mixed 24s, and white 28s 6d per quarter. Wheat—white 6s 10d a 7s. Red, 5s 6d per 70 lbs. Flour—Western Canal, 21s a 21s 6d. Canadian, 20s 6d a 21s. Ohio, 22s 6d. Sour, 19s.

ANGLO-AMERICAN MAGAZINE. Toronto, T. Maclear.

The *Anglo-American* for this month contains several well-written, original papers, and a variety of interesting selections. The illustrations are, Sir Thos. More, The Fashions, Auction Sale, and a View of Hamilton. These are very creditable to our Wood Engraver, Mr. Allanson. The first article is a short sketch of Hamilton, its rise, and progress. We have another paper on Emigration to North America, followed by, The Chronicles of Dleepdaily. There is one very fine paper—on early closing—entitled, The Voice of Nature. There is a genuine earnestness of feeling in this sketch. It will amply repay a perusal. We have a continuation of the Editor's Shanty, and Mr. Maclear himself is announced by the barking of the Major's dog—a very rustic announcement, certainly. However, those ills we can't remove, we must endure. We warmly commend this number to the kind consideration of our readers.

THE EDINBURGH REVIEW, Toronto: Thomas Maclear, Yonge street.

The contents of this ably conducted Quarterly are The Police system of London, Campbell's modern India, Dutch Diplomacy and Indian Piracy, the Marquis of Rockingham and his contemporaries, Lives of Lord Clarendon's friends, and our Defensive Armament."

UNCLE TOM'S CABIN, Toronto: Thomas Maclear, !

Mr. Maclear has made a decided hit in republishing this work at half a dollar. It is the most popular work of the day, and may be read with profit by old and young. Its pictures are true to life. It is illustrated by Mr. Allanson.

MR. SOTHAM ON HEREFORD CATTLE.

To the Editor of the Canadian Agriculturist.

Piffardinia, Livingston Co.,

New York, July 26, 1852.

Dear Sir,—I truly grieve for the “suffering condition” of Mr. Parsons’ family, and should be exceedingly sorry to disturb his distracted mind, at present, with an answer. I know full well a husband’s and father’s anxiety for a sick family, and would not think for a moment of trespassing on his time that should be devoted to them, therefore will postpone it until his mind is more tranquil, and his family restored to health. In the interval, I shall answer the remarks and make a few statements to the Editor. I deny that I set a “*bad example*,” by questioning the motives of those who differed from my views. When a man writes a book, or pens a letter for public perusal, he is subject to public criticism. Every man has a right to oppose him, whose opinions differ, and has a perfect right to point out anything that shows his judgment to be in error, or his object in writing. Professor Low wrote a book; his object was to make money by it, and as a matter of course looked to those whom he thought would pay the best. As regards judges of animals—they are public men, and are subject to public criticism, if they take upon themselves the *responsibility to extol one breed over another*. When you or any of your correspondents can *prove an “untruth”* in any of my letters, (and I think I have given you every opportunity to detect me,) you are, any of you, at liberty to *reprimand* me to your heart’s content, but I must first demand the *proof*, then I will not complain,—and will retire from the field disgusted with my own actions.—No gentleman will accuse a man of an untruth, without first proving it. As regards Professor Low, and Mr. Youatt, I shall not retract one word, but must confess I did not expect to be accused of “reckless assertions, and most unwarrantable assumption,” for saying what I did. No man is infallible; although you seem to have pinned your faith to those, with an obstinacy which regards anything that may differ in the smallest degree with their dogmas as an innovation—an heresy not to be tolerated. Both were unquestionably men of talent; they, however, are liable to error, like others, and I think the conflicting statements I quoted from Youatt in my last, was sufficient to condemn the *whole book* to any one professing a candid, well-informed, and truth-seeking mind; and I cannot help thinking, the very quotation you made from the “Professor,” though not quite so conflicting, was sufficient to show the *unsoundness* of his opinion; but I think I can find many sentences in the book worse than this. He says, from your

quoting, “the two breeds have been sometimes crossed with one another; but although fine animals have been produced by a first cross, the future progeny rarely equals the parents of pure blood. Unless, therefore, the Herefords are crossed until they become Short Horns, the proper course seems to be to preserve the two breeds in a state of purity.” Produce me a breeder if you can, with a “candid and truth-seeking mind” that can reconcile himself to this, or place the least confidence in a man who makes such an assertion. Every *practical* breeder is well aware of the uncertainty of crossing, and the utter *impossibility* of “crossing a Hereford into a Short Horn.” I have not the least doubt but the blood of each would leak out at intervals, “for ever.” It is a long time since I read the “Professor’s” book; but when I did I was impressed with the idea that it was not *sound* authority. I will get this text book and read it with a “candid and truth seeking spirit,” and fearlessly criticise any part of it, that does not meet my approbation, notwithstanding his exalted talent and your partiality towards him.

I think your criticism on the late Mr. Smythers was premature. It was the *truth*, not “boasting.” I ask what could be more conclusive of the Hereford triumph, than to fairly beat the Short Horns with one third less in number, and those exhibited principally by tenant farmers, it plainly showed that the wealth and influence of Short Horn breeders could no longer *conceal facts*, and that they were obliged to retire from competition thoroughly satisfied with their decided defeat; but the clandestine manner in which they did it, was the most glaring and *unsatisfactory*. I refer you to the remarks of the editor of Mark Lane *Express* for his opinion on that subject; you will find it in the same paper that contained Mr. Smythers’ letter.

The class for cows and heifers at the Smithfield show has generally been the most part Short Horns, and in which they have had but little competition. The best of the Hereford Cows are kept until they are too old to feed for exhibition, and frequently as long as they will breed. I have known several cows in breeders’ herds, sixteen, seventeen, and eighteen years old, and this will be the case, as long as they are so fast increasing, and in such demand they are gradually and *confidentially* gaining ground in every quarter. Lord Beswick is a convert—Sir Francis Lawley, Fisher Hobbs, Esq., and many others. The influence of these gentlemen,—their care in breeding, supported with more capital, will aid to increase the number shown, but the withdrawal of the Short Horn is *so plain* that they are thoroughly satisfied, after being beaten with so long odds in their favor. It seems to me that the question is “set at rest

for ever," and that it is not "boasting," but reality. I do not understand the tables given in your last paper, of Smithfield Show, in 1850, and I think they must be made more *comprehensive* before any one can do so. As the cow and heifer class appears there, I should say there was no Hereford cow or heifer shown. This was my impression, and for the reason above stated. The latter table of the New York State Society is plain and "comprehensive," and I think true. Mr. Corning and myself are the only importers of the Herefords. I purchased nearly the whole, and have *defended* them ever since they have been in this country,—and can say with truth that I never *commenced a controversy*.

If my trial for milk and butter had been accepted I should have removed my cows off the flats to the upland of a neighbor, as I am perfectly satisfied it produces the most milk—the former runs more to flesh—which is the reason there are no daries kept there, the whole attention is paid to feeding steers.

You and your worthy cotemporary Mr. McDougall, are in possession of the *facts* relating to my cattle at Black Rock, where I sold all my milk. You saw them at different times, therefore I leave that with you. I was always much over-stocked—one of my greatest evils; and to the detriment of the Herefords, where judgment was weak and prejudice so strong.

In the spring of 1851, I was nearly out of hay on the first of April, and had 124 head of cattle on hand, of different ages and breeds. My Hereford calves all raised on linseed jelly, and I had to buy hay at sixteen dollars per ton and fetch it six and eight miles *in the mud*. In this calamitous and trying situation, I was determined to seek some better place for my Herefords, and as they calved, I let every calf suck the cow until I drove them away, and arrived at this place on the 26th of April; but was obliged to leave at Darian (half-way) two 2 years old heifers, and calves, and an old cow sixteen years old, with her calf, and a sick heifer, for several weeks, to recover from their weakness. The "two bulls" that lay out in the straw yard most part of the winter on nothing but straw, were with them, *low in condition*, and when they commenced their new career here, *all* presented a sorry picture. They had not a lock of hay after the first day, for they would not eat it. The old grass left on the ground was all they had,—for the truthfulness of which I will refer you to Hon. Allen Ayrault, of Genesee, President of Livingston County Bank, for further proof of this assertion, if mine is at all doubted by any of your readers. The calves all lay with the cows, eighteen in number, until the New York State Fair at Rochester, when they were driven

straight from their pastures for exhibition. Only three of them were "dry," and they were near calving, but in better condition than the rest.—I think those who noticed the calves, must *conscientiously say* that they *all were fat*, and showed plainly that their dams were good nurses. This was my object in taking so many.—The cows were low in flesh and had not recovered from their poverty in the spring. The two 2 years old heifers and their calves that I was obliged to leave behind, were all at the fair.

I have sold all the bull calves and bulls that were there exhibited, except 1, which I reserved for my own use, and which was imported in the heifer the previous summer. Two went to Kentucky with the cows, sold one in Maryland, and the remainder in York State. One of the two bulls now in Kentucky, owned by John J. Fowles, Esq., Henderson County, is the best bull I ever saw; a more perfect animal for beauty, symmetry, and quality, cannot be produced. He took the first premium at the American Institute in 1850,—second at the fair at Rochester,—and I will now show him against any Short Horn Bull in Canada or York State for \$50, and the expenses of meeting half way. I am thoroughly satisfied that his present owner will comply with these conditions, and allow him to come; and, I have no doubt, will be willing to risk a similar sum, if accepted. He was previously a Short Horn breeder, but was thoroughly dissatisfied with the breed from *occular and demonstrative proof*. This may be called boasting; but it is the only way to arrive at *the truth*. This bull was let to Mr. Edward Hallock & Brothers for two years in Ulster County, and who showed him at the Institute. I will procure the remarks made of him there, for another communication, *which shall be "more brief,"* with a true descriptive account of him. Now is the time *or never*, for Short Horn breeders to *accept*; they must either do this or say no more about Herefords. I propose to have a meeting of Hereford, Devon, and Short Horn men, to appoint the Judges. The second Bull I sold to go to Canada, though not so good a bull, he will speak for himself. I have no objection to risk his progeny against any Short H. Bull in Canada. A. Hamilton Farmer, Esq., can tell where he is, as I have mislaid the name of the purchaser; he is one of the company. I have only one Bull Calf for sale, and have sold so closely that I am under-stocked for the first time, and my cattle, I am sorry to say, are too fat to be driven far for exhibition, but the present state of things forbids me showing anything in Canada, were I inclined to do so. I shall show a few at our State Fair. I have only one bull, besides the yearling, and that is an imported one from Mr. Smythers, which I keep in low condi-

tion for use. The reason the number of Herefords have been less at the Smithfield show, was, that they were by no means, well represented there, in proof of which a great number of graziers of high reputation, viz.:—Messrs. Rowland, Ledbrook, Terry, Hewett, Manning, the three Pains, Bull, and many others equally noted, who are purchasers every year of a large quantity of the very best Steers Herefordshire produces, seldom or ever exhibit an animal; the reason of which, as some of them have stated to me, is, that “winning a prize entails a certain loss, while the breeding and feeding of them is almost neglected by the wealthy owners of the sod, and who force their fashionable Short Horns for that purpose, regardless of expense or trouble.” The following is from a letter to me from William Cother, Esq., Middle Astor, Oxfordshire, the well known Cotswold Sheep breeder:—“I cannot pursue this subject further without transcribing the opinion of an eminent breeder, Mr. Bates, of Kirkleavington, at page 426, Farmers Magazine, December, 1840. ‘I visited Hereford about 50 years ago, and was then and continue still, an admirer of the best variety of cattle (Herefords,) but I consider and have for 40 years been convinced that the very best Short Horns (*which are only a few*) are capable of improving all other breeds of cattle in the United Kingdom, as well as the ordinary Short Horns which are far from a good breed, and inferior to the Herefords, Devons and others.’ And so would any moderate judge of stock conclude, says Mr. Cother, from taking a survey of the great Smithfield Christmas Market, where and when, some of the best of nearly every kind are pitched. The Herefords reigning paramount to any other breed in *numbers and quality combined, making more money per head* than a like number of any other. To this Mr. Editor, I think you can fully testify. The Hereford graziers, amongst them the names I have above mentioned always make a point of offering for sale at this market. For further information on this subject, see the yearly report of it. Now Mr. Editor, you know well the soundness of Mr. Shaw, Esq., Editor of the Mark Lane *Express*. You know his responsibility, his standing, with the agricultural community, and the council of the Royal Agricultural Society, and his *correctness in reporting all their transactions*; let me ask you as a “*straitforward*” Editor, to examine my quotations thoroughly, and see whether I have misquoted anything from him. I feel assured you cannot detect a single instance. I have cut from the Mark Lane *Express* the decision of the Herefordshire Farmer’s Club, which you will please publish. You have misquoted my passage from Youatt’s, if you refer to my manuscript you will see your error or my copy is wrong.

It should be, They are even more kindly feeders than the Devons, and will live and grow fat when a Devon will *scarcely* live, instead of “*cease*” to live.

My next letter shall be more brief, I could not explain all I wanted without occupying so much space in this.

I am, Dear Sir,

Yours sincerely,

WM. HY. SOTHAM.

COWS FOR DAIRY PURPOSES.—At the last quarterly meeting of the Hereford Farmers’ Club, a discussion took place on the subject of the capabilities of Herefords as milkers; in the course of which Mr. Rowan, a practical chemist of Hereford, explained that the land of Herefordshire was greatly deficient in the phosphates, which were most essential to the formation of milk. It had been observed that in Cheshire the milking properties of the cows had very much deteriorated, from the fact that the cheese made from their milk was exported from the country, nothing being supplied to the land in its stead with similar elements. An analysis of the milk had proved that the curd was very rich in phosphoric acid, and the remedy for the deterioration consisted in the application of bone dust. The fact that Herefordshire was very deficient in the phosphates would in a great measure account for the non-milking properties of our cows; and a good milker brought here from another country would in a few years, most probably, become a very bad one.—The chairman, Mr. Lingwood, said, this had been the case with a Suffolk cow of his own, and he was compelled to feed her. Mr. Haywood inquired whether upon the application of bone manure, the difference in the quality of grass would be perceptible. Mr. Rowan replied that it would and then observed that the geological formation of Herefordshire and Cheshire was in some respects similar; the greater part of the former resting upon the old, and of the latter upon the new red sandstone. Mr. Newton observed that Gloucestershire was a dairy county, and its soil had a good deal of blue lias clay in it, which was very rich in phosphates. The Chairman added that many of the farms were on the oolite formation. Mr. Rowan said, a very cheap method of supplying phosphate to the land was by the use of coprolites, which could be obtained from Essex and the eastern parts of England. They contained about 80 per cent. of phosphate of lime. The Chairman feared that Herefordshire was at too great a distance from Essex. Mr. Rowan replied that they might be got to Gloucester by rail at a cheap rate, and thence to Hereford by canal. After some further discussion, the meeting arrived at the following decision:—“It is considered that much may be done to improve the milking properties of the Hereford cattle intended for the pail, if made to calve in the month of May, and at about two years old, and if due regard was paid to the herbage and the management of the milking. That the Hereford cattle are considered superior to those of any other breed, in so far as they

combine the aptitude to fatten with their character of milkers. It is also observed that the pastures of the county of Hereford, from the deficiency of phosphate in a large portion of the of the districts are not well adapted for dairying."

HORTICULTURE.

THE SCIENCE AND PRINCIPLES OF GARDENING.

PROPAGATING BY DIVISION OF THE ROOTS.

Every root has what is called the crown or neck, and in some tuberous roots, the potato, a similar part is called the *eye*, attached to which is the body of the root, and from this the fibres with their feeding tips or mouths are produced.

The crown, neck, or eye, is in most roots the

only part of them that can send up a stem. The exceptions to this, are the roots of mint, horse-radish, iris, Jerusalem artichoke, couch or quitch grass, and a troublesome weed in gardens called ash-weed, from the leaf resembling that of the ash, the smallest piece of the roots of any of which will grow, because they seem to be rather underground stems than real roots. Rhubarb, likewise, and sea-kale, will generally produce plants from a piece of the roots, though entirely destitute of eyes. They are, however, a great length of time in performing this process, and the practice of propagating them in this manner cannot be recommended for gardening purposes. Dandelions, sow-thistles, and the like, might also be adduced as further illustrations of this principle, and teach us the fallacy of attempting to destroy them by merely hoeing off their tops, as the only method of getting rid of them is to eradicate every particle of the roots.



Roots to show the neck or crown; *a*, in shrubs and trees; *b*, on the carrot; *c*, on herbs; *d*, on bulbs.

It will follow, that with these, and a few other similar exceptions, roots will only be capable of being divided when they have more crowns or eyes than one, as in the small bulbs that grow at the base of the larger bulbs in lilies, daffodils, tulips, and snow-drops; the eyes in potatoes, and rhubarb; the crowns in primroses, auriculas, seapinks or thrift, dahlias, pæonies, and double rockets; and the side branches in border box and carnations.

In many of the plants just mentioned, such, for instance, as bulbs and primroses, the different crowns may be easily separated from each other by the hand, as they may generally be broken off or pulled asunder, with a good portion of root attached to each division, and being thus well provided with roots, will grow without the slightest difficulty. These remarks are also applicable to dwarf-box, which only requires to be slipped or broken off, with a few roots to each division, to render success certain, as it will seldom grow without each piece is allowed to retain a few roots. But there are others, such as dahlias, pæonies, and rhubarb, which cannot be properly separated by the hand, and with these the crown or eye ought to be cut with a sharp knife, so as not to tear or bruise the parts; and each division should, if possible, have a piece of the body of the root, and also some fibres, with their tips uninjured.—This, however, is not indispensable, for the crown or eye alone will often grow without possessing any fibres at the time of planting, as is the case with auriculas; though the fibres will, in very

few instances, succeed, without having some part of the body of the root, or of the crown, attached to them.

The chief points then to be attended to in the propagation of plants, by dividing the roots, is to see that each division has, at least, a few roots, and either a bud or eye, or the rudiment of one.

This mode of multiplying and increasing plants, it will be seen, is almost as natural as propagation by seed, except that, by the latter, plants diffuse their own seed, and increase their own species; while, by the one now under consideration, the assistance of man is necessary to perform the operation for them. It is now, however, very seldom practised, except with a few common sorts, and herbs, as by the methods yet remaining to be detailed, a much greater number of young plants may be obtained.

The Tomato.

Professor Rafinesque, of France, says of this vegetable, "it is deemed very healthy and an invaluable article of food."

Dunglison says:—"It may be looked upon as one of the most wholesome and valuable esculents that belong to the vegetable kingdom."

A writer in the *Farmer's Register* says:—"It has been tried by several persons with decided success. They were afflicted with chronic cough, the primary cause of which, in one case, was supposed to be diseased liver, in another, diseased lungs. It mitigates and sometimes effectually checks a fit of coughing."

The method most commonly adopted in preparing this fruit for daily use, is to cut them into slices, and serve with salt, pepper, and vinegar, as you do cucumbers.

To stew them, remove them ripe from the vines, slice up, and put them in a pot over the stove or fire, without water. Stew them slowly, and when done, put in a small piece of good butter, and eat them as you do apple-sauce. Some add a little flour bread, finely crumbed, or a couple of crackers pulverized.

SCIENTIFIC.

CANADA AT THE GREAT EXHIBITION.

The following respecting Canada occurs in the official reports published by the Imperial Commissioners of the great Exhibition of 1851.

"Of all the British Colonies, Canada is that whose exhibition is the most interesting and the most complete, and one may even say that it is superior, so far as the mineral kingdom is concerned, to all countries that have forwarded their products to the Exhibition. This arises from the fact that the collection has been made in a systematic manner, and it results that the study of it furnishes the means of appreciating at once the geological structure and the mineral resources of Canada. It is to Mr. W. E. Logan, one of the members of the Jury, who fills the office of Geological Surveyor of Canada, that we are indebted for this collection; and its value arises from the fact, that he has selected on the spot most of the specimens that have been sent to the Exhibition, and has arranged them since their arrival in London. The arrangement that he has adopted, which is entirely technical, includes eight divisions, *viz*:—Metalliferous minerals, and metals obtained from them; Minerals requiring complicated operations to render them fit for use; Lithographic limestone and minerals employed in jewellery, and in the manufacture of various kinds; Various kinds of clays and refractory sandstones; Rocks furnishing whetstones, hones, and polishing stones; Rocks and minerals in use for improving soils; Materials used in construction, and rocks serving for architectural decoration. Combustible minerals. All these classes include materials, of great interest, for industrial purposes, and we think it useful to mention some more specially. The ores of iron require notice first of all for their abundance and excellent quality as the magnetic oxide is worked in upwards of ten different localities. The mines of Marmora, the most important of all, are situated in the west of Canada, and are worked in a mass of ore more than 100 feet thick. The magnetic ores obtained from them (4.) are accompanied by pig iron from the works established on the spot, and belonging to the Marmora Iron Company. The Jury has recognized the good quality of their products by making honourable mention of this Company; and the same is awarded to Dr. J. Wilson (2,) who has exhibited magnetic iron ores from South Sherbrooke, and phosphate of lime from Burgess. Ordinary mention has also been made to Mr. Lancaster of Vaudreuil (6,) Captain Martin of St. Vallier (9,)

Messrs. L. Seer of Eustache (16,) E. Caron of St. Ann, Montmorency (19,) G. Duberger of Murray Bay (22,) who have exhibited ores of iron and iron ochres of different kinds. Massive hydrous oxide of iron is an important mineral amongst the iron ores of Canada, and is workable in large masses in several localities. We may mention, particularly, that of St. Maurice, which for more than half a century has supplied the iron works and foundries of that name. The Honorable J. Ferrier, the proprietor of the mines, whose products are exhibited in No. 5, has added to the ores, specimens of pig and other iron, besides slags and ashes obtained during the working of the ores. The iron of St. Maurice is of good quality, and the products exhibited show that the establishment proceeds with regularity, in a metallurgical point of view; these considerations have induced the Jury to award a Prize Medal to the proprietor. The exhibition of Canada includes the ores of zinc, lead and copper, from several localities. The ores of copper from Lake Superior and Lake Huron are remarkable for their richness, and that called "Bruce Mine" on Lake Huron has been worked for some years. The Mining Company of Montreal (the proprietors of this mine,) have erected an establishment for working the ores on the spot, according to the methods adopted at Swansea, and the objects sent by this Company (10,) exhibits by the side of the ores the various products of smelting, besides the specimens of black and refined copper. Specimens of copper and native silver, from the Island of St. Ignace, on Lake Superior, are added to these, and the Jury has awarded to the Company a prize Medal for these various objects. The existence of spangles and pepites of gold have been proved by actual investigation, in several rivers in the East of Canada, and honourable mention is made of the Chaudiere Mining Company (12,) who exhibit pepites of native gold collected in the washing of those streams. Messrs. Bedin & Lebert (15,) are also awarded with a mention for the white quartzose sands which they exhibit, which are used with advantage in the manufacture of flint and crown glass. The last award that we have to mention adjudged to Mr. Logan (1,) who has exhibited iron ores, lithographic stones, minerals, and various rocks. Our colleague has not thought it right to add to these the geological map he has made of Canada, a matter which the Jury greatly regret, not because they would then have been able to adjudge a higher reward for this beautiful work,—for the position of Mr. Logan, as member of the Jury, would render this impossible,—but because of the great interest it would have added to the Canada exhibition. The lithographic stones exhibited by Mr. Logan belong to a palæozoic rock, occurring at Marmora, where the magnetic iron ore has been mentioned as forming a despoit of enormous thickness. These stones are remarkably homogeneous, and fine grained; the degree of finish of the drawings that Mr. Logan has caused to be made upon them giving every promise of the quality being good. The geological position of the stones is interesting and the reporter is not aware such material having been previously found in the old rocks, since up to the pre-

sent time, those who practice lithography seek for stones from rocks of the oolitic series. The discovery of Mr. Morgan proving that the palæozoic rocks may also furnish good lithographic stones, increases the resources available for this important branch of engraving and drawing. We must also notice, amongst the articles exhibited by Mr. Logan, a cast of the footsteps of an animal discovered in one of the argillaceous schists of the palæozoic period. When the schists was first laid bare to a certain extent, Mr. Logan observed the impression of footsteps repeated several times; and he had the upper bed removed to satisfy himself as to whether they were confined. Their existence, under these circumstances, fully proves that the markings were made at the time of deposit of the bed, and thus carries back the existence of the quadruped animal to the earliest silurian epoch. The length of the track discovered was eight feet, and as many as twenty impressions of each foot are traceable. Besides these is an impression between the footmarks, which may be regarded as the trail either of the abdomen or the tail of the animal. It would carry us beyond the proper limits of this report if we were to give even a sketch of the geology of Canada, and those who wish to become acquainted with the subject, must be referred to the report addressed by Mr. Logan to the Governor General of Canada, and published by order of the legislative Assembly of the colony. We must however, mention the presence of phosphate of lime and gypsum; the former disseminated in large prismatic crystals in the metamorphic limestones occurring in thick beds at Burgess, while the gypsum is found in many localities forming large irregular masses, intercolated in the upper members of silurian series, especially at Oneida Seneca, on the Grand river. The gypsum has an even fracture, is foliaceous, and a fine white color, and being very pure, may be used for the manufacture of plaster for casting.

W. E. LOGAN, ESQ.

[From the Pilot.]

W. E. Logan, Esq., Provincial Geologist, has just received a beautiful bronze medal, accompanied by a letter bearing the autograph of His Royal Highness Prince Albert, for his valuable services rendered to the Exhibition of Industry of all Nations. The medal, which is bronze, is about $2\frac{1}{2}$ inches in diameter, and bears on one side the effigies of the Queen and her Royal Consort, and on the other three beautiful figures, intended to represent Fame crowning Industry in the presence of Commerce. Above is the motto:—

"Pulcher et elle labor palma decorare laborem."

The whole is a well deserved prize to a gentleman whose exertions on behalf of the Exhibition were as untiring as they were unostentatious. The following is a copy of the letter:—

SIR,—I have the honor, as President of the Royal Commission for the Exhibition of 1851, to transmit to you a medal that has been struck by order of the Commissioners, in commemoration of the valuable services which you have rendered to the Exhibition, in common with so many eminent men of all countries, in your capacity of juror. In requesting your acceptance of this slight token on our parts of the sense entertain-

ed by us of the benefit which has resulted to the interests of the Exhibition from your having undertaken that laborious office, and from the zeal and ability displayed by you in connexion with it, it affords me much pleasure to avail myself of this opportunity of conveying to you this expression of my cordial thanks for the assistance which you have given us in carrying this great undertaking to a successful issue. I have the honor to be, very respectfully yours,

ALBERT.

W. E. Logan, Esq., F. R. S.

THINGS TO BE DISCOVERED.

It is only five years since the first piece of gutta percha was introduced into our country, and it was introduced into England but a very short time before that. Nothing was known about it at all then, in comparison with what is known now. Its usefulness for many purposes is beyond calculation, for it has qualities different from all other productions, and is fitted for some purposes which no other substance can supply.

India rubber also possesses qualities, and is applied to purposes, for which there is no substitute. Liebig considers that we are vastly indebted to glass, cork, india rubber, and platina, for our modern advancement in chemical science. This is true, and we have no substitutes for these substances. We are not yet acquainted with all the useful substances in the vegetable world; we believe there are new and useful products yet to be discovered in our forests and prairies. With all the extent of country which we possess, and the vast amount of forest standing grand and dark in many of our States, pitch appears to be the only gum produced in our country, and no dye-woods but that of the yellow oak bark, is gathered for public use. India rubber and gutta percha are foreign products; gum arabic, gum shellac, gum copal, &c., are foreign products. Logwood, red wood, the best quality of indigo, cochineal, lac—in fact about all our dyes are foreign products.—Is our country, with all its varieties of climate, and soil, so barren that we have to send abroad for almost everything we need, except food, wood, and leather? We believe that too little attention has been given to our native products; we may be mistaken, but this is our opinion. Some useful discoveries of new substances may soon be made in our country, if our people, especially our planter, who are so intelligent and observing, would devote some of their time in making experiments and examinations with the object in view of adding new home products to the markets of our country.—*Scientific American*.

WATER.—Some four-fifths of the weight of the human body are nothing but water. The blood is just a solution of the body in a vast excess of water—as saliva, mucous, milk, gall, urine, sweat, and tears are the local and partial infusions effected by that liquid. All the soft, solid parts of the frame may be considered as ever temporary precipitates, or crystalizations (to use the word but loosely) from the blood, that mother-liquor to the whole body; always being precipitated or suffered to become solid, and always being redissolved, the forms remaining, but the

matter never the same for more than a moment, so that the flesh is only a vanishing solid, as fluent as the blood itself. It has also to be observed, that every part of the body, melting again into the river of life continually as it does, is also kept perpetually drenched in blood by means of the blood-vessels, and more than nine-tenths of that wonderful current is pure water. Water plays as great a part, indeed, in the economy of that little world, the body of a man, as it still more evidently does in the phenomenal life of the world at large. Three-fourths of the surface of the earth is ocean; the dry ground is dotted with lakes, its mountain-crests are covered with snow and ice, its surface is irrigated by rivers and streams, its edges are eaten by the sea; and aqueous vapour is unceasingly ascending from the ocean and inland surfaces through the yielding air, only to descend in portions and at intervals in dews and rains, hails and snows. Water is not only the basis of the juices of all the plants and animals in the world; it is the very blood of nature, it is well known to all the terrestrial sciences; and old Thales, the earliest of European speculators, pronounced it the mother-liquid of the universe. In the later systems of the Greeks, indeed, it was reduced to the inferior dignity of being only one of the four parental natures—fire, air, earth, and water; but water was the highest in rank.—*Westminster Review*.

EFFECTS OF THUNDER.

Are the telegraphic wires likely to be more effectual than rivers or canals in causing the absence of thunder storms? I answer most certainly, yes; for iron and copper wires are much better conductors than air, water, &c.; since the telegraphic wires exceed in length, by some hundreds of miles, all the canals and rivers in England put together, it follows that if rivers and canals were conductors of the electric fluid, by how much more is that fluid drawn off from the atmosphere by the telegraphic wires by induction and hence the disruptive discharges diminished and with them the quantity of rain is consequently lessened. Professor Farady in his recent electrical researches, has thrown much light on this subject by his very beautiful investigations, and his extensive discoveries in this valuable branch of physical research have far surpassed in importance those of any other enquirer, either in ancient or modern times, and he says—"The power of conduction is common to all substances and the question of discharge is a mere question of time. In some substances, such as the metals this communication takes place with extreme rapidity; in others, such as air, water, shellac, &c., the process is difficult and slow—so slow as to admit of such substances being considered as insulators." Again the progress of electrical discharge by conduction through metallic or other substances involves the idea of velocity, and hence Professor Wheatstone has, by a beautiful series of experiments, shown that the velocity of an electrical discharge is at the rate of 576,000 miles in a second of time. Again atmospheric electricity when travelling along the elec-

tric wires has been known to disarrange magnetic needles at the stations, and to prevent this an arrangement has been made at the posts nearest to the stations to carry the communicating electro-current over the tops of these posts fixing on the tops of the posts points, which attract the atmospheric electricity when the current is passing over the posts, and carries it down the posts into the earth, while the current from the battery at the previous station is left to pass on its course uninterruptedly, for it will jump over spaces, as atmospheric electricity is known to do to take the easiest and most powerful conductor towards the earth, and hence I do conceive the telegraphic wires, and also the rails, carry off by conduction much electricity from the air, and thereby reduce the frequency and intensity of our thunder storms.

W. H. WHITE.

—*Mark Lane Express*.

SMALL BEGINNINGS OF GREAT INVENTIONS.—I like the story of the apple that fell on good Sir Isaac Newton's nose; of Dr. Franklin and his kite; of little Benjamin West inventing the camera obscura, in his darkened bedroom, when getting well of a fever, and little dreaming—mild young Quaker—that somebody else had invented it, two years before, on the other side of the Atlantic, 4,000 miles away! Most of all do I affect the traditional anecdotes relative to painting and engraving. Touching the last, it is curious that nearly all the legends concerning it should be connected with that very humble adjunct to domestic economy, the wash-tub. A bundle of wet linen, thrown on a steel cuirass which had been engraved in aniello, and on which a faint impression of the pattern came off, was the germ of plate engraving, the little *radiculum* from which the works of Woollet, and Landseer, and Coutins were to spring. A hard day's wash, souring the always somewhat acid temper of Dame Alice, wife of Master Albert Durer, drove him for refuge to his wood-blocks, and goaded him to the devising of that marvellous art of cross-hatching, in wood engraving, as lost and ignored, for centuries afterwards, as the cunning trick of staining ruby glass, or tempering poignard blades.—*Dicken's "Household Words."*

POTATOE DISEASE.—A correspondent of the *London Times*, adopting the signature of "An Eye to the Potatoes," in the course of some admirable observations on this subject, makes the following remarks:—"The potatoes again show unmistakeable symptoms of disease—the leaves and stems appear withered and burnt, and these symptoms were developed immediately after the great thunderstorm of Friday week last—those plants alone escaping which were under the shelter of some walls. The same effect was produced upon some potatoes of my own, apparently by the same cause, while residing in Guernsey, some few years back; and the present result tends to confirm me in an opinion which I was then led to adopt, owing to the development of the disease appearing to be immediately consequent upon the

liberation of a large amount of atmospheric electricity, that the potato rot is due to the formation of ozone, which is an altropic or electric and more active form of oxygen.

Now, as the potato disease has been generally found to be the precursor of cholera, some of our chemical philosophers may be led to put the ozone theory (at least, so far as regards the potato disease) to the test of experiment. Surely, nothing would be easier than to ascertain the influence of an atmospheric ozone upon a potato plant; and if it could be shown that all the symptoms of the disease can be thus artificially produced, at least we should have advanced one step towards the discovery of a remedy for it, and, may be, afterwards, for that more terrible scourge, the cholera. Catarrhal complaints, I find, have been very general among my own friends, since the late storms, and that this is an ozonic effect Professor Schonbein, to whom we owe the discovery of the substance or principle itself, has placed beyond doubt. Dr. Faraday, too, recently showed, by some experiments performed at Brighton, that ozone is generally present in the breeze blowing from the sea; whereas that coming across the down is free from it. Those who have consulted Dr. Faraday's admirable map of the cholera in his late voluminous and philosophic report upon the subject, will not have failed to observe that the places where the pestilence committed the greatest havoc were mostly either on the banks of rivers near the sea, or on the coast itself; and that in the inland districts the scourge was comparatively powerless.—*Liverpool Paper*.

ADULTERATION OF FOOD.

I have perused with mingled feelings many of the investigations of the *London Lancet* in reference to the adulteration of food, so much practised in the present day, and I cannot resist the conclusion that the disclosures there made, present humanity in a most degraded aspect. One portion of the body politic is presented to our view as seeming to take supreme delight in preying upon the life's blood of the rest of the commonwealth. The siren lures her votaries by her enchantments, and by the promise of an endless store of pleasure; the highwayman lays wait for his victim for the sake of his cash; and the prowling miscreant watches his opportunity to rifle the till of his fellow-being, to help on a miserable existence: against all these, however, we may so far be on our guard. The love and the pursuit of virtue, will lead us in safety beyond the enchanted ground of the charmer, and the wise and effective laws of society may shield us from the assaults of a common foe. But this class of deceivers to which I more especially refer, first disarm us of suspicion by fair promise and false appearance, and then, like the vampire which soothes its victim while it is intent on his destruction,—they take advantage of the position they have secured, and make their gains accordingly. What an appalling amount of commercial dissimulation and degrading deception has been revealed by these investigations of the *Lancet*. So

glaring indeed is the deception, and so gross and outrageous are the snits resorted to, solely with a view to make money that one can scarcely believe that human beings possessing ordinary reasoning faculties could be so far demonized as to engage in it; or, after it was discovered, that society would be so long suffering as still to permit them to occupy a position among the haunts of men. I have often thought that these investigations must be conducted upon some sort of Oxy-Hydrogen Microscopic principle; for as that instrument will discover animalculæ of a thousand varied shapes, roaming at large in a drop of water, so must all these ingredients that are discovered in our coffee, our sugar and our other articles of commerce, be so magnified, and receive an existence as it were, which in reality, without this instrument they did not possess. But it is not so,—I must believe, however humbling the belief, that men can be found, so utterly destitute of the slightest claim to the feelings of nature or humanity, as to employ their time in mixing up the food of their fellow-beings with deleterious and poisonous substances, and seemingly too without the slightest compunction.

As regards the article Tea, I have often satisfied myself of the absurdity of giving the name, Tea, to the mixture you purchase, unless it be as a general term, for it would be impossible in many cases to say whether the leaves of the hawthorn, sloethorn, privot, currant, or tea plant, predominate most in an infusion. But if they kept only at that mild deception, the injury would not be great, for I believe that an infusion of the leaves of the red currant would be drunk by lovers of tea, with as great a relish as would the fairest infusion of that far-famed plant. Not content, however, with the first mixture, the old used up rubbish is purchased again from the hotel-keepers and other large consumers, and it is retouched, and mixed with verdigris and all sorts of abominations to make it once more fresh and pungent, then it is ready for market as genuine green tea. Then as to coffee, to expect it free from burnt peas, burnt corn or chicory would be almost hopeless. So far have they carried the deception in this way, that in Paris they actually manufacture the coffee beans out of a kind of paste, composed of all sorts of material, and sell the beans thus manufactured to those knowing families that like to grind their coffee themselves in order to have it free from mixture. It is no use attempting it, we live in mixed society and must of necessity exist upon mixed food, and mixed drink, and every sort of mixture, however distant may be their family relationships. I believed, however, that the adulterating process was bounded by certain well defined limits, and beyond that, we might expect something genuine. I had fancied, for example, that mustard and red pepper, two articles I am very fond of, were beyond the pale of adulteration; but alas for my credulity. In mustard, so far has the deception gone, that while in nearly all articles, some pure specimens may be found, not one pure sample of this commodity could be discovered. Even the finest Durham mustard was discovered to be a vile adulteration, so thickly mixed up with turmeric and other poisonous dye stuffs, that if you use it, you do so at your peril. Then comes my favourite spice—red pepper, which for a climate such as this, is invaluable for every day use. It is now however, so changed, that it would be impossible to recognize it. As this is among the last disclosures I will allow the *Lancet* to speak for itself.

"In none of the investigations of the *Lancet* Commissioners have the disclosures made been more startling than those now brought before the public respecting cayenne pepper. Of twentyeight samples examined, it was found that twentyfour were adulterated, twentytwo contained mineral or coloring matter, and only four were found to be genuine. In thirteen of the samples red lead was found in large

and poisonous quantities. In seven of the samples were found venetian red, red ochre, brick-dust or some other analogous ferruginous earth. In six of the samples were found a large quantity of salt, combined with red lead and a red ferruginous earth; the purpose of the salt is supposed to be to bring out the color and the acid taste of the genuine portion of the cayenne. The other ingredients were vermilion or sulphuret of mercury, a highly deleterious substance, cinnabar, turmeric, ground rice, and husks of white mustard seed. It is remarked as a peculiarity of red lead and vermilion, or sulphuret of mercury, that not only are they highly poisonous, but when taken into the human system are not eliminated as in the case with some poisons, but remain in the body, the doses gradually accumulating, until they seriously affect the health of those who use them. The diabolical miscreants who are guilty of manufacturing these poisonous frauds, deserve hanging much more than the starving and desperate wretches who commit burglary, or rob on the highway."

Farewell! red-pepper, farewell—deeply do I regret to say so:—but ere we part,—again Farewell. P.

THE CHEMISTRY OF NATURE AND ART.

The rustling of rose leaves by the wandering winds, the falling of gentle showers on beds of thyme, and the brushing of a lady's dress against the orange geranium, send forth sweet tinkling perfumes, which, although unseen by the eye, regale the senses and delight the heart. From what rich storehouse do flowers and scented shrubs draw their choice sweets; how curious must be the laboratory in which they have been distilled, how subtle the combinations, how intricate the processes; hath art done anything to compare with nature in the production of such odoriferous treasures? The laboratory of a flower is a mysterious place; the most offensive matters of the stable, the offal of the streets are transformed there into the fragrance of the wall-flower and the perfume of the mignonette. But art has her mysteries too, and she is also lavish with her sweets. Within a very short period, chemistry has made many discoveries in the production of artificial odors. Some of the most delicate perfumes exhibited at the World's Fair were made by chemical artifice, from cheap and otherwise offensive matters. Heretofore the scents of shrubs and flowers used by the rich, the fair, and gay, have been obtained from emulsions of those flowers and shrubs themselves. But now from the foetid fusil oil the practical chemist has obtained an ether oil which has the perfume of sweet pears: this is obtained by distilling it with sulphuric acid, acetate of lead and alcohol. Sweet-scented apple oil is obtained in the same manner, only the bichromate of potash is employed instead of the acetate of lead. An oil fragrant as the pine-apple, is obtained from a soap made with butter, and distilled along with alcohol and sulphuric acid; an oil which imitates that derived from almonds, and which is so extensively used for scented soap, is made from offensive coal oil distilled along with nitric acid. Dr. Hoffman, one of the jury of chemists at the Great Exhibition was deeply impressed with the importance of these discoveries, and in a letter to Liebig he particularly directs his attention to them. The component parts for the production of pear oil, he states, are one part by measure of fusil oil, two parts of sulphuric acid, six of alcohol, and two parts of the acetate of lead. The oil of bitter almonds is quickly made by having a glass worm with two tubes, through one of which flows nitric acid, and through the other, benzole; when they meet they unite, forming the nitrate of benzole, which is the substitute for the oil of bitter almonds. The most extravagant prices

have heretofore been asked and obtained for strong scented oils, their prices must soon come down to a more moderate standard.

Chemistry has demonstrated the fact, that the perfumes of flowers are but ether oils, but the flower is still the most skilful chemist, for it neither finds its acids, alkalies, fats, nor alcohol ready made; it collects them from the air, the earth, and the falling rain. This new branch of chemistry should arrest the attention of our chemists, for there can be no doubt of the fact, that an endless variety of perfumes can be obtained by the distillation of oils, fats, acids, alkalies, and alcohol together. The chemist cannot produce a single blade of grass; in the true sense of the term—although it is so named—there is no such a thing as "organic chemistry;" he only works with non-vitalic matter, but at the same time, it is certainly a triumph of science to imitate nature in any of her productions; this the chemist has done in those new productions which we have described. There are hundreds of other discoveries yet to be made—they are waiting to reward industrious and persevering experimenters.—*Scientific American*.

THE NEW YORK CRYSTAL PALACE.

We understand that this work will go on; the Company is to have the Building ready by the 2nd of May, next year, at "Reservoir Square," in this city. Some important regulations have been adopted to carry out the objects of the Society, and for this purpose, some discordant elements have been removed. A number of designs have been presented for the building, but only two are worth looking at; they are—the English one by Paxton, and the American one by Bogardus—we have had an opportunity of looking at both plans, and we must say, that the one of Mr. Bogardus is far the best in every respect—in beauty, grandeur, originality, strength, simplicity, and economy. If erected, as it should be, it will be an honor to our country. It is in the Doric style of architecture, and is of a circular form, with a tall tower in the centre, rising grandly above all. The whole area of 400 feet in diameter will be embraced at one glance, while the changing points of beauty, owing to its form, and the regularity of its columns, will be like a panorama to visitors. And one grand element in the calculation—a truly American one—is, that after it has accomplished its object in the Exhibition, it can be taken down in parts, and fitted up into a number of public or private dwellings. All the parts are so cast and fitted, that they can be taken to any part of the world, and will all dovetail together. This is a very different feature from the London Crystal Palace. Whatever the projectors of this Crystal Palace may do for the improvements of the arts, it will add to their reputation if this noble design be adopted by them.—*Scientific American*.

DISCOVERY IN TELEGRAPHING.

George Little, an electric telegraph engineer, has made a valuable discovery in the production of uninterrupted streams of electricity, to work telegraphs, without the use of batteries. He informed us that he had been experimenting for six years, in London, with a view to obtain this result. He has brought his working models along with him, and we have examined some of the messages which they print; they are like Bain's chemical messages. He calculates that his discovery will effect a saving of \$200,000 per annum to our Telegraph Companies. He does not use platinum, mercury, nitric acid, nor sulphuric. If this invention effects such a saving, it will be hailed as a

boon by all classes; for the telegraph, we believe, is far from being perfected. Perhaps it may be the means of working a line 3,000 miles long across the Atlantic; something which cannot be done with our voltaic batteries at present.—*Scientific American*.

MISCELLANY.

USE THE PEN.

Use the pen! there's magic in it,
Never let it lag behind;
Write the thought, the pen can win it
From the chaos of the mind;
Many a gem is lost for ever
By the careless passer by,
But the gems of thought should never
On the mental pathway lie.

Use the pen! reckon not that others
Take a higher flight than thine,
Many an ocean cave still smothered
Pearls of price beneath the brine;
But the diver finds the treasure,
And the gem to light is brought:
So thy mind's unbounded measure
May give up some pearl of thought.

Use the pen! the day's departed
When the sword alone held sway,
Wielded by the lion-hearted,
Strong in battle! Where are they?
All unknown the deeds of glory,
Done of old by mighty men—
Save the few who live in story,
Chronicled by sage's pen.

Use the pen! the sun above us—
By whose light the chemist's art
Stamps the forms of those who love us,
Showing us their counterpart—
Cannot hold so high a power
As within the pen's enshrined,
When, with genius for its dower,
It daguerreotypes the mind.

Use the pen! but let it never
Slander write, with death-black ink;
Let it be thy best endeavour
But to pen what good men think:
So thy words and thoughts securing
Honest praise from wisdom's tongue,
May, in time, be as enduring
As the strains which Homer sung.

J. E. CARPENTER.

EXPERIENCE OF ANIMALS.

Animals are prompt at using their experience in reference to things from which they have suffered pain or annoyance. Grant mentions an ourang-outang which, having had, when ill, some medicine administered to it in an egg, could never be induced to touch one afterwards, notwithstanding its previous fondness for them. A tame fox has been cured from stealing eggs and poultry, by giving them to him scalding hot from the saucepan. Le Valliant's monkey was extremely fond of brandy, but would never be prevailed on to touch it again after a lighted match had been applied to some it was drinking. Two carriage horses, which made a point of stopping at the foot of every hill, and refused to proceed in spite of every punishment, were considered beyond cure, but it was suggested at last that several horses should be attached to the back of the carriage, and, being put into a trot, be made to pull the refractory horses backwards. The result was perfectly successful; for thenceforth they faced every hill with speed, and were not to be restrained till they reached the summit. A dog, which had been beaten while some musk was held to his nose, always fled away whenever it accidentally smelled the drug, and was so susceptible of it, that it was used in some psychological experiment to discover whether any portion of musk had been received by the body through the organ of digestion. Another dog, which had been accidentally burned with a lucifer match, became angry at the sight of one, and furious if the act of lighting it was feigned. There are, besides, so many instances recorded of even higher degrees of intelligence, that it is impossible to deny that animals arrive at a knowledge of cause and effect. Strende, of Prague, had a cat on which he wished to make some experiments with an air-pump; but, as soon as the creature felt the exhaustion of the air it rapidly placed its foot on the valve, and thus stopped the action. A dog, having a great antipathy to the music of the violin, always sought to get the bow and conceal it. The well-known story recorded by Plutarch proves the application of accidentally acquired experience. He says that a mule, laden with salt, fell accidentally into a stream, and, having perceived that its load became thereby sensibly lightened, adopted the same contrivance afterwards purposely; and that, to cure it of the trick, its panniers were filled with sponge, under which when fully saturated, it could barely stagger. The expectation of the recurrence of an event is the impression of a former circumstance, which, from certain causes and a resemblance of certain points, we are again led to entertain and to see fulfilled. The application of experience is traceable in the lower orders of life. The razor shell-fish buries itself deep in the sand when left by the ebbing tide, and is attracted to the surface by a little salt being dropped into its hole. A movement of the sand immediately follows, and presently half the fish becoming visible, the fisherman draws it out with an iron prong; but, should he fail in seizing it, or relax his hold, the fish rapidly disappears, and it will not rise again, although more salt be thrown to it. It seems thus to be aware of its danger, for it will come forth on a fresh application of salt, should it not have been touched in the first instance. Borley says that he saw the attack of a lobster on an oyster. Lobsters, like most other crustacea, feed principally on shell-fish, which they extract with their claws, and in the instance in question the oyster closed its shell as often as the lobster attempted to insert itself; after many failures, the lobster took a small stone, which it placed between the shells as soon as they were separated, and then devoured the fish. Monkeys in the West Indies have been seen to resort to the same device. Crickets, if disturbed, withdraw quickly into their holes, and

AN EXTENSIVE FARMER.—The extensive operations of a gentleman farmer of Maryland, are noticed by the *Eastern Star*. He cultivates with his own servants—numbering near four hundred—some nine or ten farms—about six thousand acres of land, including timber land—and raises annually between thirty and forty thousand bushels of wheat and a much larger quantity of corn, besides various other valuable products. Besides the extensive operations in Talbot, he has a plantation carried on the State of Mississippi, worth several hundred thousand dollars, and his annual income from his estate here, and his plantation in the South cannot fall short of \$150,000, six times as much as the income of the President of the United States. His residence is one of the most splendid in this country, being the homestead of the Lloyd family since their first settlement in Maryland.

re-appear again soon; but, if the disturbance be repeated, they remain altogether within them. A fox escaped from a trap in which it may have been caught, remembers the danger, and is not again to be deceived. Birds are equally suspicious. The quail which has once been enticed into the net by the call-pipe, will not allow itself to be caught again; but some, like the redbreast and titmouse, are not easily alarmed. A wasp encumbered by the struggles of a large fly, which it had caught, bit its wings off, and then bore it away with ease; the same with a sand wasp, which attempted to draw a small moth into its hole, but, being prevented by the wings of the insect, it separated them and the legs from the body, and thus secured it. Duges saw a spider which had seized a bee by the back, and effectually prevented it from taking flight; but the legs being at liberty, it dragged the spider along, which presently suspended it by a thread from its web, leaving it in the air to dangle till it was dead, when it was drawn up and devoured.—*Thompson's passions of Animals.*

LAUNCH AT PORT STANLEY.

On Saturday afternoon, the 7th inst., we had the pleasure of witnessing the launch of a fine new vessel which has been building this summer there. The weather was everything that could be desired, and a great display of female beauty was the result. A great concourse of people arrived throughout the day and kept pouring in from all quarters, in carriages, buggies, and on horseback, up to four o'clock, when it was fully expected that she would be ready to move off. It was, however, half-past five o'clock, before she finally started, when she glided majestically into her destined element amid the loud applause of the vast crowds of people assembled. There could not have been less than two thousand persons present; the wharves, piers, and neighboring hills were completely covered. The ceremony of christening the craft was performed by Miss Hope, daughter of Adam Hope, Esq., London, who, as she was gliding gently off the ways, broke a bottle of the juice of the grape just over the vessel's stern, and proclaimed her the *Isaac Buchanan*, of Port Stanley. She is named by her owners, as a mark of respect, after a gentleman who has been long known in Canada, who takes a lively interest in everything appertaining to the interest of his adopted country. The *Isaac Buchanan* measures 101 feet keel, 24 feet beam, and 9 feet hold; will register about 250 tons or 300 tons burden; is a fine model of a schooner, and, no doubt exists with those who understand these matters, will prove a fast sailer, combined with great carrying properties. She will be rigged as a fore and aft schooner, has a centre board, a beautiful wheel for steering, and has one of the latest improved capstans, taking up very little room with a heavy double purchase. Her cabin is being fitted up very tastefully, being roomy and not much of the vessel's stowage being taken up; she will have an extra room, with two berths, for an occasional passenger, who may want to enjoy the scenery of our lakes, and is not pressed down to a few days time. She is owned by Capt. Pollock, who takes command of her, well-known on the lakes for his gentlemanly conduct and thorough seamanship, Hodge & Co., the Forwarders, and two gentlemen in London. She was designed and built under the superintendence of Capt. Moses Fletcher, who has a high reputation for building staunch and quick vessels.—It is worthy of remark, although Port Stanley is surrounded by the very best of timber, that this should prove to be only the third vessel ever known to be built here.

As far as we can learn, the *Britannia* was built in 1828, the *Sterling* in 1830, and, after the lapse of 22

years, the *Isaac Buchanan*. We trust the example set by the spirited owners may be followed up, and that we may at least have the pleasure of witnessing a launch once a year. She has been built, we believe, with the intention of being placed on the route between this and Montreal, and trust our merchants will give her a generous support, wishing her every success upon whatever Lake she may be employed, and that she may soon recompense her owners.—*Canadian Free Press.*

NOBLE CONDUCT OF A NEWFOUNDLAND DOG.—The dog Rolla, belonging to Mr. Adams, 66 Courtland St., on Sunday last performed one of those heroic deeds of humanity for which the Newfoundland breed is remarkable. An interesting little boy, about ten years old, while playing near the water at Hoboken, lost his balance and fell in. The tide sweeps along the shore there with great rapidity, and the little fellow in a few moments was carried apparently beyond the reach of human assistance. The lad it seems could swim a little, but just as his strength was giving way, the dog, at a short distance from the spot, quick as thought dashed through the crowd, leaped into the water, and in a minute more, had the boy by the collar, secure between his teeth. To bring him ashore, back to that peculiar spot, however, was an impossibility, owing to the force of the current; so that the only hope was to make a point of land some distance ahead, (between Jersey City and Hoboken,) and for that quarter Rolla steered his course, amidst the applause and excitement of the spectators. On went the noble animal, bravely buffeting the tide, and careless of the shouts of applause, all the while keeping the boy's face out of the water. He reached the goal at length with his precious burthen, safe and sound, but a little frightened; and no sooner had he laid him down than the noble animal sunk exhausted on the sand. He was instantly surrounded by a numerous crowd of people, who had been eye-witnesses of the scene, vying with each other in showing kindness to the heroic animal that had thus risked his own life to save that of a helpless hum an being. Some idea of the labor performed by the dog is had in fact that the entire distance he had to swim is said not to be less than *two miles*!

One of the saddest things about human nature is, that a man may guide others in the path of life without walking in it himself; that he may be a pilot, and yet a cast-away.

Cincinnati used to sell heavy contracts for whiskey for the army; but this sort of "military spirit" is now dead, and coffee is substituted.

He who wants good sense, is unhappy in having learning; for he has thereby only more ways of exposing himself.

The shortest and surest way to live with honor in the world, is to be in reality what we would appear to be.

Never laugh at those who do not dress as well as you do. They may know a good deal more than you do.

You may glean knowledge by reading, but you must separate the wheat from the chaff by thinking.

The face of truth is not the less fair of all the counterfeit wizards that have been put upon her.

Nothing great can be effected without trouble and labour.

Do good with what thou hast, or it will do thee no good.

Truths, like roses, have thorns about them.

OSTRICH FEATHERS.

"A fashion," said a descendant of Abraham—a dealer in feathers—to us one day, "travels in circuits, and generally performs a revolution every ten or twelve years." He found out that feathers had their regular duties to perform in the fashions in about the periods stated, hence he kept a sharp look-out for those of good quality during the intervals. The finest feathers, and those which are most prized, once belonged to that much maligned fowl, more valuable than a hundred Shanghai barn fowl—the ostrich.—The finest feathers are plucked from tame ostriches, not from wild ones, as is generally supposed. It will no doubt be useful information to some people to be informed how to clean such feathers. This is done by squeezing them with the hands in strong soapsuds and then rinsing them in clean water; this is for white plumes. After being washed they are run through a very weak solution of the sulphate of indigo, and afterwards exposed to the fumes of sulphur in a tight box, the same as is done by milliners when sulphuring straw hats. After exposure to the fumes of sulphur they are hung upon cords to dry. To color ostrich feathers, they are tied up loosely in cotton bags, in such a way as the fibres will not be tangled, and then boiled in kettles along with the dyestuff. Scarlet can be died with cochineal, tartar, and the chloride of tin, in a kettle with boiling water. It takes about half an hour to colour. Yellow can be coloured with the chloride of tin, and yellow oak bark. Green can be coloured with fustic, and the sulphate of indigo. Black can be coloured with a little copperas, blue vitriol, fustic and logwood.—The fibres of these feathers are curled by drawing them over the edge of a blunt knife, between the thumb and finger: this is a secret in the art of dressing them. In these countries from which these feathers come, they are submitted to a bleaching process by the natives. They are exposed to the sun and dews for two or three weeks, and carefully washed with soap and pipe-clay.

HOT SUMMERS.

The excessive heat which prevails at present gives some interest to the following account of remarkably hot summers:—"In 1132 the earth opened, and the rivers and springs disappeared in Alsace. The Rhine was dried up. In 1152 the heat was so great that eggs were cooked in the sand. In 1160, at the battle of Bela, a great number of soldiers died from the heat. In 1276 and 1277, in France, an absolute failure of the crops of grass and oats occurred. In 1303 and 1304, the Seine, the Loire, and the Rhine and the Danube were passed over dry-footed. In 1393 and 1394 great numbers of animals fell dead, and the crops were scorched up. In 1440 the heat was excessive. In 1538, 1539, 1540, 1541 the rivers were almost entirely dried up. In 1556 there was a great drought over all Europe. In 1615 and 1616, the heat was overwhelming in France, Italy and the Netherlands. In 1646 there were 58 consecutive days of excessive heat. In 1678 excessive heat. The same was the case in the first three years of the eighteenth century. In 1718 it did not rain once from the month of April to the month of October. The crops were burnt up, the rivers were dried up, and the theatres were closed by decree of the Lieutenant of Police. The thermometer marked 36 degrees Reaumur, (113 of Fahrenheit.) In gardens which were watered, fruit trees flowered twice. In 1723 and 1724 the heat was extreme. In 1746, summer very hot and very dry, which absolutely calcined the crops. During several months no rain fell. In 1748, 1754, 1760, 1767, 1778, and 1788, the heat was excessive. In 1811, the year of the cele-

brated comet, the summer was very warm and the wine delicious, even at Susenes. In 1818 the theatres remained closed for nearly a month, owing to the heat. The *maximum* heat was 35 degrees (110 75 Fahrenheit.) In 1830, while fighting was going on on the 27th, 28th, and 29th of July, the thermometer marked 36 degrees centigrade (94 75 Fahrenheit.) In 1832, in the insurrection of the 5th and 6th of June, the thermometer marked 35 degrees centigrade. In 1835, the Seine was almost dried up. In 1850, in the month of June, on the second appearance of the cholera, the thermometer marked 34 degrees centigrade. The highest temperature which man can support for a certain time varies from 40 to 45 degrees (104 to 103 of Fahrenheit.) Frequent accidents, however, occur at a less elevated temperature."—*Galignani's Messenger*.

FLAT ROOFS.

All the new houses which have been built in New York recently, have what are termed flat roofs; that is, the roof is nearly level and slants but slightly from one side to the other. The old huge peaked roofs are fast disappearing; we wonder how they ever came into use. The inventor of them must have been a man full of conical ideas. The flat roofs are covered with tin and well painted. If a fire takes place in a building, it is easy to walk and work on the flat roof, so as to command the fire if it be in the adjacent building; this cannot be done on peaked roofs. Flat roofs are cheaper and more convenient in every respect. We advise all those who intend to build new houses to have flat roofs on them. It is far better to have a flush story at the top of a building than a peaked cramped up garret which is only comfortable for travelling on the hands and knees.—*Scientific American*.

FEMALE EDUCATION.

From the Canadian Family Herald.

In a previous number we made a few incidental remarks on Female Education while noticing the Examination of Adelaide Academy, an Institution established in Bay street, with a view to a successful and thorough prosecution of this paramount work. Happily we need not here discuss the importance of female education. This, in itself an exhaustless theme, has been conceded on all hands so far as to render a recurrence to first principles, altogether unnecessary. Nor need we again revert to the institution already named, as so well fitted to carry out the desired end. We wish at present only to congratulate our readers upon the progress of the good work throughout society at large. We have passed the first stage. The necessity of female education is not now discussed, when the topic is introduced; but the kind of education adapted to the development of the female faculties, and the best means to apply the kind of instruction fixed upon. These are now the points of consideration and it is well that the subject be calmly pondered. Whether shall it be Common School or High School education? Shall it embrace not only the simple elementary branches, that may fit one to move respectably in a subordinate sphere of life, or shall it combine with these, the practical elucidation of the Sciences? Shall the female mind be prepared and consolidated by a thorough gradation in Mathematics, to grapple with abstruse speculations? Or, with a due regard to the affections and finer feelings of Woman, shall the female faculties be

drawn out and refined by disquisitions on Poetry, Music, and the Fine Arts? Shall it be considered more conducive to the best interest of society, that a musical problem from Mozart be preferred to a problem from Euclid; or that the development of a Poplar tree on the sewing frame, shall supersede the digestion of a popular treatise on Astronomy? Shall it be considered more in keeping with the wants of the age that the female fingers be trained to paint a lily or a butterfly, or that the mind be prepared by a sound and judicious study of Botany and Entomology to unfold the varied mysteries of the one, or expatiate on the beauties of the other. We speak not now of accomplishments, but of sober study. These points being settled to the satisfaction of society, then comes the grave question,—How is the education fixed upon, to be conveyed? Is it conformable to the dictates of prudence that boys and girls be left to pursue their studies in one school-room, or must the girls be separated from the noisy, boisterous, and sometimes even ruthless merriment of the boys, that they may be surrounded by more refined and gentler associations. These are important considerations for all, in reference to the mode of teaching. We would, on this point, simply ask,—What lesson does nature inculcate?—How do we find boys and girls circumstanced in every-day life,—do they belong to respective groups of society, separated by a broad line of demarcation, or, are they to be found mixed up indiscriminately, in the palace, as well as in the humble cot? In whatever way nature has arranged them, we would say, in this way they will be best educated. Nature has said, these two portions of the social fabric go to make up one whole. Their aim in life is one—mutual comfort, mutual affection, and mutual relationship. They are nourished by the same food, affected by the violation of the same organic laws, cheered by the same hopes, fascinated by the same fairy creations of nature; why then should they be separated in their system of education? why should not their sympathies, and their affections, and their mental faculties be alike developed in the society of each other as they are when under the parental roof. What would be thought of the parents who would isolate the several members of their family by putting the daughters in one department of the building and the sons in another, allowing them to see each other, perhaps through the window as they walked in the garden, or as they went to Church on Sunday, there to occupy separate pews, or separate standing places, as is the custom in the churches of Eastern Europe. Why, they would be looked upon as insane, or at least doing all in their power to subvert the well being of society. But we find no such dreamy theorizing, happily, in that society in which our Queen is the centre. We find that from infancy to youth the different members of a family enjoy each others society, and find their greatest comforts there, until the time when the dictates of reason and nature demand that their most endeared affections be centred in their own respective homes. But are they even here isolated—no, the very reverse;—that filial affection which so sweetened the swiftly passing moments in their parental home, is brought more vigorously into play to animate and gladden that home in which they are at once the bulwark and the centre; and according as that affection has been developed in early life, will it in its matured state be more elevated and ennobling. This seems somehow the lesson which nature furnishes, and as such should not be subverted in our mode of conveying instruction if we wish to be successful. We will look at other elementary points in next number.

If it is the lesson of nature, as indicated in our last closing remarks, that boys and girls, being indiscriminately commingled in the respective family circles to which they belong, would be most successfully educated in the same commingled state, then another lesson is

inseparably connected with it. We must infer that our Educational system has so far been fighting against nature, and it is not difficult to see that society has been injured in consequence. Hitherto our training has been such as is not calculated to produce the greatest community of feeling or similarity of sentiment. After reaching a certain stage of their progress, for example, the one party has been trained to elaborate an essay, while the other elaborates a watch-chain. The mind of the one is bent so far to meet the incidents of every day life; the mind of the other roams in an Elysian sphere, far removed from either the duties, or the encumbrances of life. Such an education when matured, necessarily produces coquetry and deception on the one hand, and distrust and want of confidence on the other; and even when this barrier seems so far removed as to allow two similarly minded young persons to enjoy each others society, the deception and evasion must still be practised, as if it were a sin to love. All this results from beginning wrong in our educational system. We would say then let boys and girls romp and rollick together at school, it will tend to the healthy development of their muscular organization;—let them attend the same classes, and stimulate each other to overcome the little difficulties which lie in the way of their intellectual progress, and it will conduce to a more vigorous development of the mental faculties. Many a young man when circumstanced in life as the sun and centre of a little happy family circle, looks back with feelings of chastened delight, to the happy hours he spent in the company of his affectionate sisters, when under the paternal roof, and he attributes to their society, and to their influence, the purity of his own mind, and the refinement of feeling which enabled him to pursue a happy, because a virtuous, course. A person so circumstanced may baffle all the conventionalities of life, but there are many young men, equally well disposed, but not so highly favoured in the allotments of life. They are left to form associates of their own class, and necessarily are deprived by the customs of society of that refining education which would result from a commingled system of instruction. It is firmly engraven upon our own mind that among the greatest of our juvenile difficulties, was the daily competition with two or three girls, that right or wrong would keep the top of the class. In many of the schools in the cities of America boys and girls are taught together. In all common schools in Scotland boys and girls are taught in one apartment. In England there is in reality no common school system; but in nearly all the schools, of whatever name, boys and girls are taught in separate apartments. The same is the rule here; but nevertheless of that, having taken cognizance of the system in its various ramifications, we decidedly prefer the Scotch parochial school system; but would wish it, as in many isolated portions of the States, carried out to the highest of our High Schools. It is evident that girls would require to devote part of their time to needle work, which boys would not require so to devote, and that this must be done while their fingers are yet pliant and delicate, in order to insure expertness in the use of the needle: but that could be overcome by being practised at different hours, while boys would be devoting their time to architectural or mechanical drawing, or modelling, or some such work that would not necessarily come under the scope of female education—that is to say, something which belonged more immediately to the prosecution of mechanical pursuits. What good reason can be assigned that our High Schools should be shut against girls? It is surely a part of the remnants of that feudal system of the middle ages, which looked upon the female as an inferior being, and only fitted for the drudgery of life. We question not here the prominence given sometimes, by feats of chivalry, to

the happy fair: these were, at best, exceptions to the rule, and were too transient to affect the mass left beyond the pale. It belongs to this age alone, in an eminent degree, to exalt woman to that high position which a benign Creator so highly fitted her to occupy, as the companion and the friend of man;—and how much better would society be, if the lingering dregs of that anomalous state were entirely dissipated. Let us then, for the sake of all interests in society, have our school system, from its simplest to its highest stage, open alike to boys and girls, and let them be trained in one apartment, that the natural delicacy and gentleness of the one may soften down the asperity of the other. We are aware that grave doubts are entertained, by persons well acquainted with the practical working of the school-room, as to the prudence or propriety of such a course of procedure.—It is the opinion of such, that, from the ages of 15 to 18, young women study much more closely and attentively, when by themselves, than they are found to do, when mixed with lads of a similar age; and that associations are often formed, in such cases, that have an injurious effect upon the respective parties, in all their after career. We, at once, admit the force of the objection, in so far as it applies to our higher seminaries of learning, but have been in the habit of attributing any difficulty that may arise from such a source, to the want of a more thorough adaptation of our school machinery to the requirements of such a system. Even if it were the case, that there is in the mixed system, not so great a desire for application, beyond a certain age, this, we think, would be remedied by the lively competition of the various members of the classes; and we are convinced that, at all events, it would very greatly improve the feelings and manners of the male sex, and would prepare the female portion of society much better to fulfil the high station to which, in after life, they may be called. It is all nonsense to try to deal with abstractions in education. It is better to educate beings, as nearly as possible, for the places they are to occupy in life, than to educate them to fill fancied spheres of existence; and as one great end in life—however much it may be neglected in our educational system—is, to create and cherish a unity of feeling, a harmony of sentiment, and an interchange of affection in society, as a whole; no means, we believe, are so highly conducive to the attainment of this desired end, as the daily and progressive polishing of the future society, in the inchoate development of its component parts, by our educational machinery, in all its branches.

RAZORS.—Barbers often tell us that razors get tired of shaving, but if laid by for twenty days they will then shave well. By microscopic examination it is found that the tired razor, from long stropping by the same hand and in the same direction, has the ultimate particles or fibres of its surface all arranged in one direction, like the edge of a piece of cut velvet; but, after a month's rest, these fibres re-arrange themselves heterogeneously, crossing each other and presenting a saw-like edge, each fibre supporting its fellow, and hence cutting the beard, instead of being forced down flat without cutting, as when laid by. These and many other instances are offered to prove that the ultimate particles of matter are always in motion, and they say that in the process of welding, the absolute momentum of the hammer causes an entanglement of orbits of motion, and hence a re-arrangement, as in one piece; in the cold state, a leaf of gold laid on a polished surface of steel, and stricken smartly with a hammer, will have its particles forced into the steel so as to permanently gild it at the point of contact.—*Scientific American.*

Our time is like our money. When we change a guinea, the shillings escape as things of small account. When we break a day by idleness in the morning, the rest of the hours lose their importance in our eyes.

A CURIOUS FACT.—A modern philosopher, taking the motion of the earth on its axis at seventeen miles a second, says, that if you take off your hat in the street to bow to a friend, you go seventeen miles bareheaded, without taking cold.

The "Athenæum," in a very lively paragraph, directed to merciless correspondents, says: "Think twice, before you write once." Punch begs leave to amend even this excellent counsel, and says: "Think twice, and then don't write at all."

Excellence is never granted to man but as a reward of labor. It argues, indeed, very small strength of mind to persevere in habits of industry without the pleasure of receiving those advances, which, like the hands of a clock, while they make hourly approaches to their point, yet proceed so slowly as to escape observation.

Industry is not only the instrument of improvement, but the foundation of pleasure. He who is a stranger to it may possess, but cannot enjoy; for it is labor only that gives relish to pleasure. It is the appointed vehicle of every good to man. It is the indispensable condition of possessing a sound mind and a sound body.

He who can wait for what he desires, takes the course not to be exceedingly grieved if he fails of it. He, on the contrary, who labors after a thing too impatiently, thinks the success when it comes, is not a recompense equal to all the pains he has been about it.

I am sent to the ant to learn industry; to the dove to learn innocence; to the serpent to learn wisdom, and why not to the robin red breast, who chaunts it as cheerfully in Winter as in Summer, to learn equanimity and patience?

GREAT SALE OF SUPERIOR THOROUGH BRED SHORT-HORN CATTLE.

The Subscriber will offer for sale, his entire herd of choice short horns, comprising 50 head, young and old at Public Auction, on Wednesday, the 13th of October, 1852, at One o'clock, P. M. at his Farm 2½ miles from the City of Troy; reserving to himself one bid on five Cows and Heifers and one Bull, say six head in all, and these to be pointed out previous to the commencement of the sale; this bid will be made public when the six animals are brought to the stand for sale. Should any gentleman advance on the single bid made by the proprietor, the highest bidder will be entitled to the animal. It is proper to say, the severe drought in this vicinity reducing the hay crop one half, has decided the proprietor to make this sale at the time named, instead of next June, which he had purposed to do.

The well established reputation of this herd in this Union, and in Canada, and the splendid herd it has measurably sprung from viz; the famed herd of that eminent English breeder, the late Thomas Bates, Esq., renders it hardly necessary to comment upon its superior merits. It may not however be inappropriate to remark, that the establishment of this herd was commenced in 1838, and that the most careful attention has since been paid to its breeding, and it now contains mostly all the reserved stock of two former public sales. Since 1840, the proprietor has imported from the late Mr. Bates, and his friends and late tenants the Messrs. Bells, 7 head of short horns; and besides these he has now on the passage across the Atlantic, shipped 21st. June, on board the Packet Ship Kossuth, Capt. J. B. Bell, a superior yearling roan Bull, having many crosses of the famed Duchess Bulls of Mr. Bates. Including this latter animal and

the two beautiful red roan 3 year old Heifers, which came out from England last September, "Yarm Lass" and "Yorkshire Countess" and the beautiful Heifer Calf of the latter animal, got in England by the Duchess Bull 5th Duke of York, there will be 14 head of this imported stock, and its immediate descendants. There have been sold from this herd but three Heifers from these importations, and these Cows were sold at \$300 each. All young Bulls bred from these Cows, except those now offered for sale, have also been sold at private sale, at \$300 each, most of them while quite young.

Besides these 14 head of high bred animals, the noble premium Cow, Esterville, 3rd, bred by E. P. Prentice, Esq., of Albany, and her equally fine 2 year old, red and white Heifer bred by me, got by the Bates Bull Meteor, and three of the famed milking Willey tribe, the same tribe of Cows as the Heifer Ruby, sold by me to Mr. S. P. Chapman of Madison Co. and which Cow was awarded the first premium by the New York State Agricultural Society, for producing the largest quantity of butter in 10 days in June, and 10 days in August, on grass pasture only, being a fraction over 40 lb. in those 20 days. There are other valuable tribes in the herd, as the printed catalogue will show.

The Catalogue will be ready for distribution about the 1st of August, and will exhibit richness of pedigrees rarely to be met with, showing the descent of the most of the animals, from the best animals on record in the English herd book. Having received an invitation from H. Strafford last winter to forward a list of the pedigrees of my herd to be inserted in the forthcoming volumes of the English herd book of which Mr. Strafford is now the Editor, several pedigrees were sent to him of the animals here offered for sale, and will appear in said book.

A credit of 9 months will be given on all sums up to \$300, and 9 and 18 months on all sums over \$300, for approved paper, with interest payable at some Bank in this State.

GEO. VAIL.

Troy, New York, July 9, 1852.

Letters



Patent.

TIME & LABOR SAVED ARE MONEY EARNED!

B. P. PAIGE & Co., SOLE PATENTEES.

THE Subscribers having had secured to themselves the exclusive right to Manufacture and vend to others to use, in the Territory of Upper and Lower Canada,

SEVERANCE'S PATENT IMPROVED HORSE-POWER AND THRASHING MACHINE,

One of the most Valuable Machines ever invented for saving labor and time, respectfully inform the Public that having greatly enlarged their Extensive Establishment on Wellington Street, now extending through from Prince to George Street, which will give them ample room and accommodations, they trust, to enable them hereafter to supply the whole Farming Community of Canada, with a machine that will thrash and clean more grain in a day with less expense and more neatness than any other Thrashing Machine in use, and requiring but Two Horses.

We beg leave to say to our Customers & Friends, that we are again prepared to furnish those in want of Thrashing Machines, with an article superior even to those heretofore manufactured by us. Our long experience in making, and the very liberal patronage we have enjoyed in the sale of our Machines, has, together with a constant determination to produce an article that will never fail to excel all others, caused us to watch carefully all the improvements that could be made from time to time, until now we feel confident in saying, that for durability, neatness of Work and amount of it they can do, our Thrashing Machines are unequalled by any in use, and while the grain is thrashed clean, and none of it broken or wasted, it is at the same time perfectly cleaned, fit for the mill, or any market.

One of the above named Machines, will give a man, with proper diligence and attention, an income of from five to eight hundred dollars a year, as appears by the statements of a great number of gentlemen, who thrashed last season, and have kindly given us permission to refer customers to them for information in regard to the operation of our Machines.

Whereas, Letters Patent were obtained, bearing date March 5, 1849, on said Machine, the public are cautioned against purchasing, using, and manufacturing any imitation article, as all infringements will be dealt with according to the law of the land. All the genuine Machines will be accompanied by a Deed, signed by B. P. PAIGE, the owner of the right, giving the purchaser the right to use or transfer the same.

All orders addressed to us, or to **WILLIAM JOHN-SON**, our Agent, will be promptly attended to. Machines shipped to any Port in Upper or Lower Canada, and every one warranted to be as good as recommended.

B. P. PAIGE & Co.

The Agents for the sale of the above Machine in Canada West are as follows:—Workman, Woodside & Co., Toronto; Roswell Wilson, Ancaster; Horatio A. Wilson, Westminster; M. Anderson & Co. London; Mr. Samuel Young, Asphodel. 66s-6m

Montreal, August 1822.

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AND

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TORONTO, OCTOBER, 1852.

NO. 10.



GRAND PROVINCIAL FAIR.

The Seventh Exhibition of the AGRICULTURAL ASSOCIATION of UPPER CANADA, was held in the City of Toronto on the 21st, 22nd, 23rd, and 24th ultimo, and, making due allowance for some disadvantages affecting the arrangements, arising out of the unfavorable weather at the commencement of the week, the Show, as a whole, must be considered highly satisfactory; and, as was generally anticipated, much superior to any of its predecessors. For the greater portion of the description of this splendid Exhibition of Canadian Industry, we are indebted to our excellent weekly cotemporary, the *Family Herald*.

"A new week dawned upon us with radiant smiles; but, just as the curtains of night were closed upon earth's scenery, a bleak, hollow wail came sighing from the lake, which gave threatening indications that the usual unsettled weather, incident on the recurrence of the autumnal equinox, was about to commence. To sustain this idea, Monday morning dawned in tears. The rain was gentle but unceasing, and continued without intermission throughout the whole of Monday, until 12 o'clock—mid-night,—when, with the witching hour, we had the pleasing prospect of a returning smile. But, no, Tuesday morning was

wet as ever, and continued so for several hours; but towards the early part of the day the rack began, to disappear and a load was gently lifted from a thousand hearts. The remaining part of the day was dry and full of promise, and the Show Grounds exhibited a busy scene, entering, depositing, and arranging the various stock and articles for the Fair. The Halls were receiving their finishing touch and the several committees were unsparing in their efforts to make everything harmonize with the general plan.

On Wednesday morning the Directors, Judges, and various members of the Press, breakfasted together on the grounds in a spacious tent, erected by Mr. Beard, on Caer Howell Bowling Green. T. C. Street, Esq., M.P.P., President of the Agricultural Society occupied the chair, and was supported on the right by Colonel Thomsom and J. G. Bowes, Esq., Mayor of the City, and on the left by Colonel Bruce and the Hon. Malcolm Cameron. Hon. Adam Fergusson, Professors Croft, Buckland, and Hind, and many gentlemen well known in the scientific walk, were present. After a comfortable breakfast the President announced that the judges were requested to meet together in one end of the tent, in order to make arrangements to proceed at once to duty. This was the signal for a general break up of the meeting and the judges were shortly left involved in business. At 2 o'clock on Wednesday the grounds were thrown open to members, in order that they might have a general inspection before the doors were opened to the public. We took advantage of the offer to make a leisure survey.

Without further preface therefore we enter again by William Street, and cast a passing glance at some of the articles with which the ground had been so finely studded. The first implement on the right hand was a Grain Separator from J. R. Smith of Batavia. Next to this was a Straw Cutter on an entirely new principle, and one likely

in perhaps some modified style, to supersede all the other forms of Straw Cutters now in use, both for effect and simplicity. The Machine itself except the frame, is made of iron and steel, and is the invention of E. T. Taylor, Thomas & Co., Pearl St., N. Y. Nineteen circular steel knives $7\frac{1}{2}$ inches diameter, made of saw plate and sharpened smooth, are caused by machinery turned by the hand, to revolve rapidly, intersecting a cast iron roller which is made with small hooks to draw in the straw upon the knives, where a great quantity of fodder can be cut in a few minutes. The Knives can be sharpened up in a few seconds by just holding a whetstone or file to them when revolving. One great advantage of this machine is, it will cut any kind of produce for fodder, as easily as straw, and may thus save a Vegetable Cutter. It is driven by a fly wheel about 3 feet diameter, and with a full set of knives can be furnished for \$30. One little point is deficient, but we have no doubt that it will soon be overcome,—it cuts the straw about an inch in length, while with the other cutters you can have it a quarter of an inch if required. Beside this was a very fine specimen of Fanning Mill from J. H. Vandercook, Fulton County, New York, warranted to clean 100 bushels of wheat an hour, value \$25 to \$30. J. Helm, jun., Port Hope, had two very good reaping machines standing here in the American department. One of these is made exactly after the style of Hussey's, and is very well got up. It is valued at \$100. Mr. Helm has made them after McCormick's, but prefers Hussey's. Wheeler, Mellock & Co., of Albany, exhibited a very good horse power, and next to this was a whole field of agricultural implements from that enterprising and extensive firm Rapalje & Co. of Rochester—ploughs without number of all forms and descriptions, harrows, cultivators, rollers, rakes, scythes, and straw-cutters, &c. You had there, in fact, a specimen of nearly every kind of farming implement in use. Close beside these stood Hussey's Reaper, which made so much noise at the World's Fair. It is certainly an ingenious machine. Mr. Gormon of Kingston exhibited a very pretty four-oared pleasure yacht; it is very neatly finished. This closed up the right-hand space. Crossing to the other side, there was a complete two-horse-power threshing machine, from Loughborough Village, in Sydenham, back from Kingston, valued at \$160.—Mr. Griffin, of Brantford, exhibited a very good clover-cutting machine. Mr. Robt. Wright, of Port Hope, had an improved horizontal self-acting sawing-machine, for cutting firewood, shingle blocks, &c.,—warranted to cut a 2-foot log in one minute and twenty seconds. There was a very fine horse-power thresher by G. Sanderson, Flamboro', and some good steel harrows. Here stood a newly-invented one-horse grain-rake, by Mr. Begg, of Pickering. It is capable of raking 20 to 25 acres a-day. This machine differs from the ordinary horse rake, inasmuch as the horse does not go over the grain. It is likely to come into general use, and can be made for from \$12 to \$14, according to finish. It can be fitted to all the purposes of the ordinary rake, although the great merit of the invention is, its applicability to

grain. It is well worthy the inspection of the farmer, as there was not another one on the field of a similar construction, and its price is moderate. There was here a good horse-rake of the old pattern, from the Gore of Toronto—value, \$30. Mr. Hollowday had also a very good grain-drill, of an expensive make, capable of sowing 12 to 14 acres a-day; it is very substantial, and valued at \$120. Also, very fine specimen of seed-harrow, at \$16, and manure forks, well finished, \$1 $\frac{1}{2}$. John Bruce of Dumfries, exhibited a cultivator, which for simplicity and durability attracted general attention; it is manufactured for \$36. Gilbert Samson, of St. Catharines, exhibited two very good straw-cutters, valued at \$18; a very fine specimen of field cultivator for summer fallow, which can be furnished for \$35; and a small corn cultivator, with steel teeth, for \$10; also a chain pump, with metallic pipe, galvanised, and galvanised chain, quite free from corrosion. It will draw by hand quite easily from a depth of upwards of 40 feet, and is adapted to all kinds of wells. Their value is pretty much regulated by the depth of the well, as there is more chain and pipe needed, the deeper the well is; but a pump complete for a 10 feet well, can be furnished at \$11 $\frac{1}{2}$. Hager's patent seed drill from Palermo, C. W., is a useful implement, valued at \$50, not, however, equal to Nixon's, but as Nixon's did not come forward, Hager's was the best on the grounds. There were some good rollers from Mr. Beckett's foundry in Simcoe Street; single rollers valued at \$30 to \$40; double one at \$100. Mr. Medcalf of Toronto, had a very highly finished horse-power thresher and separator. It was prepared for the Exhibition and is valued at £66. Haggart & Brothers of Brampton exhibited a most beautiful machine of a similar construction. Beside Medcalf's, on one end of the Canada Company's Flax machine, was a machine for plaiting whips, manufactured by Mr. Medcalf's son, displaying a great amount of mechanical ingenuity. It was the most complete piece of mechanism on the grounds. The Flax machine attracted considerable attention. There were a number of ploughs, of a variety of sorts, at this end, by Mr. Crowther of Scarboro', Mr. Scruton of Streetsville and other makers. John Amor of Hamilton had two screw and lever Cheese Presses of a simple and useful description, and worthy the attention of farmers; they can be produced for \$16. His curd mill is valued at \$6. Mr. Butterfield of Oshawa had a few Straw Cutters, valued from \$20 to 30. Mr. Gage of Rochester exhibited an improved Bread machine, value, \$200. This machine worked by three men, will turn out 30 barrels of flour into Biscuit in one day. Mr. L. Houck exhibited a double action fanning mill, value \$30. This machine is improved and patented by Mr. Houck, and warranted to clean 2 bushels of wheat in a minute. Smaller sizes made for \$25. Mr. James Searight of Adelaide Street, Toronto, claimed the attention of the ladies more especially to a new improved Washing Machine, constructed upon the principle of a Fulling Mill, but to work by hand. This Machine can be made for from \$8 to \$12, according to size and finish, and seems well adapted to the operation of washing. He had also a very superior Straw Cutter, with

an angular knife, which will cut upwards of 70 bushels of Hay in an hour. It is simple in operation and not easily put out of order, and worth about \$18. Mr. Thomas Brown of Bowmanville, had a new construction of Cultivator, value \$40. This is rather a superior article, and possesses many good properties. A new design of Straw Cutter was exhibited by Mr. Peter Higley of Oshawa, with a double-action perpendicular cutter, the under one serrated, the upper one straight. These knives pass each other and cut very well to any length required. But we think that Mr. Searight of Adelaide Street, with his angular knife, has by a much simpler process arrived at the same perfection in cutting, and there is less danger of getting out of order. Mr. Higley's implements are valued at from \$16 to \$20. In the centre nearly of this area stood McCormick's Reaper, the Machine that took the Prize at the World's Fair. The one exhibited was not so highly finished as Hussey's on the opposite side of the field, but was prepared for ordinary use. We will not here institute any comparison as to the merits of McCormick's. After a severe test in England, it was found to have several superior points which were sufficient to cause the Judges there to award to it the prize. Mr. Moscrip of Cobourg, C. W., exhibited a very good specimen of Duncan's improved Smut Machine. Emery and Co., of the Albany Agricultural Warehouse, exhibited a variety of implements; amongst others, a single horse-power thresher, valued at \$80. There was a very good specimen of Thomb's and Walcott's patent Thermometer Churn, from Paris, C. W., valued at \$10. On the roadside in this implement field, stood Messrs. Jacques & Hays' Cabinet department.—A small, single-roomed cottage, 21 feet by 17 inside, with three windows and a door, erected by themselves, and nicely hung with crimson and drab damask, and carpeted with rich Brussels.—It contained a unique display of walnut cabinet furniture. On the right hand was a three-door Ladies' Ward, made for C. H. Turner, Esq., of Rook's Nest, Surrey, England, and valued at £35. The door-panels are veneered with a very rich curl, and the mouldings are broken in the centre of the circle, by a carved ornament. The inside is all finished in bird-eye maple, and finely polished. On the left hand stood the principal attraction,—a very magnificent French bed, with an elaborately-carved foot-board and pediment.—In the centre of the foot-board is a Madonna and child, boldly carved, surrounded by a graceful wreath of convolvulus, combined with a garland of flowers, copied from nature, including the dahlia, German aster, rose, and convolvulus, all neatly grouped and carved in relief. On the top of the pediment is a Cupid, with a bird on his finger, and at each end, suspended from a scroll, is a group of fruit, also taken from nature. The pillars are closely in keeping, being surrounded with groups of convolvulus on the upper part, and hung with wheat and wild flowers on the under part. The rails are also tastefully decorated with raised panelling. This bed, worth about £60, was got up expressly for the Exhibition, by Messrs. Jacques and Hay, and designed and the principal parts executed by Mr. Charles Roger, Designer

and Carver for the establishment. Beside the bed stood an antique Confessional chair, made for Fred. Widder, Esq. The back and seat are covered with very elegant sewed work, executed by one of Mr. Widder's daughters. The carving is a combination of the pink and tiger-lily. The value of the chair, without the needle-work, is about £10. In one corner was a very elaborately-carved French Card Table, forming, when folded, a very handsome pier table. In the opposite corner was a small ornamental table, with a pretty good specimen of dining room chair, done in Morocco, standing beside it.—In the centre, between the bed and the wardrobe was a fancy drawing room table, with four truss legs and oval top of Italian Marble. The rails are carved in relief and partly fretted. This table has been purchased by Mr. Chancellor Blake. It is worth about £14 10s.—At the back of the table stood a French Chair done in rich French Damask of an elegant style, and very tastefully finished. This completed the furniture of Messrs. Jacques & Hays rural cottage, and gives a very favourable idea of the kind of work turned out of the establishment, and speaks highly for the refined taste, skill in design, and mechanical ability of Mr. Roger.—There were many varieties of implements that must be passed over without even a cursory notice. Rapalje & Co. had upon the grounds themselves, as many straw cutters, churns, ploughs, &c., &c., as would set up a great many farmers, but their implements are too well known to need an elaborate detail.

At the upper end of the grounds stood Perry's celebrated Fire Engine which took the prize in the World's Fair. It is a splendidly finished machine. On the same ground there was a good display of carriages and waggons. Mr. Peter Murdoch of Ancaster had a patent iron wheel waggon that is worthy of notice. The wheel has 20 spokes of small rod iron screwed into the nave at opposite angles and screwed into the outer rim which is a narrow band of iron. One of the wheels is done up with iron tube spokes and riveted into an inner rim before the outer one is put on, which is then done in a similar way to the iron rim of a wooden wheel. This waggon with brass nave, highly finished, can be produced for \$150,—with iron nave and common substantial finish \$100. Mr. Jones of Brockville exhibited a patent coil spring carriage, value \$100. This seems a considerable improvement on the old principle, for a light machine. John Walker of the township of Erin, County of Wellington, had a very substantial looking two-horse waggon, with a new mode of putting on the shelving. It will carry with ease 32 barrels of flour, runs easily, and is valued at £35. There was a variety of good looking waggons from other makers; one was named Bright, maker, Toronto, another Pearson, maker, Gore of Toronto. A carriage from Clark Brothers, of York Street, attracted great attention; it was driven round the grounds by Mr. Mitchell with a span of finely caparisoned greys. By a peculiar arrangement of the connecting part of the body with the fore axle, the carriage is made to turn with much greater facility and in much less space than usual. The front part of

the covering is of glass, so constructed as to be easily removed, and to leave it entirely open. The interior is beautifully finished, and the arrangement of the springs makes the motion of the body very easy. A Montreal gentleman offered £200 for it, but this was not accepted.—Under lea of the centre Hall was Palmer's computing scale, for solving mathematical problems mechanically. This is a very ingenious instrument for performing arithmetical questions and is very easily understood.

CANADA COMPANY'S FLAX MACHINE.

Among the Implements deserving a special notice was Donlan's New Flax Machine, just imported from England by F. WIDDER, Esq., Chief Commissioner of the *Canada Company*. The Machine was kept in operation and attracted much attention, performing its work very effectively. Our space at present only allows of this brief notice, but hereafter we shall enter into a fuller description of this machine and its uses.

FLORAL HALL.

In the Fine Arts and Ladies department of the Floral Hall there were so many things worthy of notice that we preferred leaving its details to a special sketch rather than to pass it in so cursory a manner as time and space on a previous occasion would have demanded. On Wednesday afternoon the judges had not completed their arrangements here, so that we only made a running survey thinking to fill up any hiatus on the following day; but when the public were once admitted the thoroughfares were so thronged that it was next to impossible to get more than a passing glimpse. In this one department too, we experienced more difficulty in getting a little scrap of information than in all the rest of the show together. In the fruits and flowers section we placed ourselves under the guidance of Mr. Fleming who descanted upon everything visible, with precision. In the fancy sewing and wax-flower section, we met an intelligent and very communicative attendant; but all the rest was a blank in so far as information was concerned. Especially was this the case in regard to a very attractive Loo table. Who was its maker? or whence it came? were facts shrouded in mystery, and only very partially revealed by the vague idea that it came from Hamilton. Nevertheless of these difficulties we proceed once more to work, and entering in from the Educational department the first thing which met the view was a pretty fair display of Fire Screens of various patterns, panelled with fancy sewing; several specimens of Lithography from Mr. Scobie, and some specimens of Letter Press Printing from the same gentleman; Mr. Cleland, Mr. Plees, Mr. Smilie of the *Hamilton Spectator*, Messrs. Chatterton & Helliwell, Hamilton, and Mr. J. G. Judd, *North American Office*, also exhibited specimens of Letter Press Printing. A pair of slippers from Mr. Polson, Bootmaker, Yonge Street. Each of these slippers was cut out of one piece of leather in a very ingenious way so as to require no seam, and was folded up to form the quarter with its inside lining, the ornament in front, the straps for the buckle, and side linings, all in one

piece. The pattern paper from which they were cut, was hung beside them, that the visitor might see how the thing could be accomplished; but as there was no one near to explain, it is very likely that this contribution was looked upon as merely a pretty pair of slippers, when, in fact, the merit lay more in the cutting of them than in the stitching, although that was also very tastefully done. Mr. Polson refused \$25 for his pair of slippers. Adjoining these slippers was a specimen of printing paper, from the factory of Taylor & Brothers, Front St., a great variety of combs of different kinds and very finely finished, from Mr. —. The next object of attraction was, that centre table which was supposed to have come from Hamilton. The top was in marquetry work, and was very tastefully finished. It was, in fact, a splendid piece of cabinet work; but set upon an old fashioned, clumsy looking, triangular block, with rudely carved paws. The marquetry was formed of upwards of a dozen different kinds of wood. Mr. Allanson's Wood engravings came next. They were chiefly from the engravings prepared for Mr. Maclear's Magazine, and being printed on proof paper, were very much admired. There was a very pretty Sofa or Queensbury, or something of that kind, and next were specimens of silver work from Mr. Morrison, Jeweller, King Street; in the case were the salver and other articles presented to Mr. Alderman Beard lately, by the City Council and Fire Companies, and the beautiful spade made by Mr. Morrison, by order of Fred. Capreol, Esq., to be presented to Her Excellency Lady Elgin in turning the first sod of the Northern Railway. There were various specimens of bird stuffing, China and crystal work, elevations of public buildings, &c., &c. The corner was closed up by a large display of daguerreotypes from the gallery of Messrs. Evans and Harrison, King Street; these attracted very great attention, as the various figures are beautifully delineated. On the corner of the table on the left hand, returning, was Mr. Wheeler's case of curiosities, consisting of the dies with which the silver medal for "Life Members" of the Agricultural Association was struck; being, we believe, the first pair of dies struck in Canada. These dies were cut by Mr. Wheeler, on his own responsibility; but we have no doubt the Association will secure them in order that they only may have the privilege of conferring the Badge of the Association's membership. Beside the dies was a silver medal of the Association, the appearance of which was described in a previous number. The gem of the case was, however, a steel finger ring, of curious workmanship. On one of its shields was engraved a Coat of Arms, on another the portrait of a Lady, and a third was formed into a cuirass studded with bosses of burnished steel. On the under side of the ring was an oval note seal, with a monogram engraved thereon. This little ornament must have cost a great amount of labor, as it was very elaborately finished. On the same table were some pretty colored crayons, and in the back ground Paul Kane's finely executed Indian scenes. These were the Medicine Pipe Stem Dance; a Horse race on the inside of the Rocky Mountains; Camp of Indians on Lake

Huron; White Mud Portage on the River Winnepeg; Buffalo Fight; Driving Buffaloes into a pound; Portrait of a Squaw of the Ojibbeway Tribe, and a Sketch of a Chinook. Okah Tubbee also exhibited a variety of Indian curiosities.

Near the centre Mr. White of Hamilton displayed a Melodeon and Seraphine, both of very fine tone and well finished. The Melodeon was valued at \$45, the Seraphine at \$100. Beside these, Messrs. Thomas & Sons, of Toronto, displayed a very rich toned full Grand Piano newly finished and valued at \$500. It is the first of the kind made in Canada we believe, that is to say, reckoning from the discovery of Canada by Jacques Cartier. Beyond this Piano was a pretty little chamber Organ—two stops—manufactured by Mr. Townsend of Hamilton. This was a charming instrument, and when a bellows blower could be found, made considerable attraction. Messrs. Lawson & Clarkson exhibited a quantity of Candy and other confections, done up in various forms. Besides these was another display of Lithography, some specimens of knitted work; a box of cigars in all their forms and variety by Stephen, Bender & Co., Toronto. Boots and slippers from John Russell, King Street; a case of perukes, &c. On the other side of the Hall there was a great variety of knitted work from different parties; specimens of book-binding from Mr. Otto, book binder, Yonge Street; a display of tailoring from Messrs. Stovell & Baines. In particular, one double-breasted coat of a new pattern and termed the Manteau Canadien, and made from cloth manufactured at the Niagara Mills, by T. C. Street, Esq., M. P. P. Then came the beautiful sleigh robe from the manufactory of L. Marks, Yonge street. It was formed of furs of all the animals known in Canada, very tastefully grouped into figures, the principal ornament being six fox skins entire forming a star with the heads to the centre. This robe was valued at £30, and will be sent down in a few days as a present to His Excellency to keep him comfortable in the cold northern winter. Mr. Marks also exhibited several descriptions of boas, fur caps and two fur coats. Mr. Joseph Rogers exhibited a variety of hats.—Mr. Salt also had a fine display in that line; his white Siberian fox was a great attraction. Mr. Harcourt, King street, exhibited a fancy dress coat nicely quilted, value somewhere about \$30. This one we believe took a prize for workmanship. At the opposite end of the Hall, Mr. Blogg of Toronto, exhibited a case of boots and shoes, very fine workmanship. In front of this, was Palmer's case of daguerreotypes, comprising several dozens of well known individuals of Toronto and neighbourhood. Many of the persons walking about the Hall could easily be distinguished as forming component parts of the concentrated essence of Mr. Palmer's display. In the corner was the figure head of a vessel by Mr. David Fleming, not quite finished, but very boldly and well carved. Mr. Fleming also exhibited in another part of the Hall, the figure of the knight which was carved for the exhibition of the Canadian Institute. From this corner to the fountain was a rich display of Crotchet Work, Fancy Sewing, Worsted work, and Wax

Flowers. Miss Galbraith's 1st prize crotchet work was very pretty. Miss Clench's wax flowers were also finely grouped. Mrs. Joshua Beard and Miss Hewlett exhibited fine specimens of knitted work. Several fancy baskets made of seeds attracted great attention. There was also some remarkably pretty specimens of hair working from Mrs. John Cameron. This was one of the finest displays of delicate workmanship on the table, and must have cost an immense amount of labour. Mrs. W. B. Crew exhibited some very pretty wax figures, as also Miss Wilson, and Miss Bell of Toronto. Amongst these ornaments was a case of dentistry by Mr. Rahn displaying the great scientific and mechanical skill of that gentleman. At intervals too we had a display of Mr. Hoppner Meyer's Portraits, among these were, the portrait of B. Galwey Esq., Commissariat General, the portrait of Miss Fitzgerald of O'Shaughnessy papers celebrity, and the portrait of A. V. Brown Esq. As Mr. Meyer is now so well known it is unnecessary to say that these were in the highest style of the art. There is a transparency about his colouring that renders his miniatures very expressive. There were also some very pretty miniature portraits in ivory by Mrs. Campbell, of Brockville. Mr. W. Hind exhibited some very pretty oil paintings, one of these was "Waiting for the Boat," another "Reading the News." These are very creditable productions. They were somehow thrust into a corner, and were, in consequence, not so well seen. Another very attractive feature was the entomological display by Mr. W. Couper, Toronto. There was one case of insect architecture, displaying the formation of galls in their various stages, and many other very curious matters connected with insect life. Another large case contained upwards of fifteen hundred specimens of Canadian insects, all arranged in their respective classes. Mr. Couper very honorably earned the first and second prizes for his labour, and has in this, as well as on a previous occasion, manifested that he is the greatest practical entomologist of Canada. The roof of this Hall was tastefully draped with shawls and knitted work, and banners and other ornaments. Among the banners was one for No. 5 Fire Company, by Robert Griffith, an amateur painter. There are no doubt a great many interesting works which have not even been named. To the exhibitors of these we would say, in conclusion, that no local or selfish feeling governed our mind in the hurried note we took of what was to be seen. We were anxious to give a full and impartial account of the Exhibition; but of the Fine Arts department more particularly, we found our efforts so far defeated by the smallness of the Hall, and the arrangement of the articles. These were matters over which we had no control; and if, in the exercise of a great public duty, various shortcomings are abundantly manifest, we only plead in extenuation of these sins of omission the circumstances already named, as our chief aim was to give a careful and candid delineation of the whole.

On entering Floral Hall at the Western door on the right hand, the first display was a large assortment of grapes, pears, peaches, plums, and a few specimens of winter apples, and a variety of

green house plants, from Judge Campbell of Niagara. A little farther on you saw a beautiful specimen of the Alexander apple from Mr. Farrow, of Yorkville; some fine specimens of Hot-house grapes from W. H. Boulton's garden, and some very fine specimens of open air elingstone peaches from J. F. Smith of Yonge Street. The centre tier of the table and two adjoining shelves were covered with greenhouse plants and exotics, sent in by Mr. Fleming, Yonge Street. Mr. G. Lesslie Toronto Nursery, made a very fine display of apples, pears, and plums, most of them only as specimens of the kind of trees they are cultivating, and are for disposal in their nursery. They exhibited 70 different varieties of apples, although they did not compete for so many, 30 varieties of different kinds of pears; 12 varieties of plums, one of which got the prize for the best variety. Mr. Lesslie has also other prizes, but they will be given correctly in their proper place. There were some beautiful coxcombs from Mr. Lewis of Yorkville, large and finely formed.—Mr. Watson, farmer, Yonge Street, sent in a pretty plant of the Jerusalem cherry. Rev. Mr. Harris, of Yonge Street, exhibited some very good apples and pears, and Mr. Silas Snider, of Yonge Street, had a large collection of apples and pears. In the centre of this table there were some pretty bouquets by Mr. Fleming, and a collection of annuals in bloom from Judge Campbell of Niagara. Captain Dick had a very fine dish of pears, Flemish Beauty; and Mr. Barnhart of Streetsville, exhibited 40 varieties of apples and 20 varieties of pears. The opposite side of the hall was nearly all devoted to foreign fruits and flowers. There were fine verbenas from Professor Croft, and two collections of dahlias, from Mr. Barnet of Niagara Falls, and Mr. Fleming. From the Mount Hope Nurseries, Rochester, 40 varieties of verbenas, 32 varieties of Roses and bouquets of flowers, 26 varieties of pears, 22 varieties of apples, and a large specimen of onions and tomatoes; from Ryan's Plank Road Nurseries, Rochester, 75 varieties of dahlias, 31 varieties of apples, 21 varieties of pears and 6 specimens of quince; from Donnellan's Nursery, Rochester, 16 varieties of pears, 37 varieties of apples, large specimens of musk and water-melons, and a fine display of dahlias, verbenas, and china asters.

HORTICULTURAL TENT.

In the Horticultural tent there were some specimens of the tobacco plant from St. Catharines, some large plants of the Palma Christi or Castor Oil plant, and an excellent assortment of Cabbages and pot herbs from various Toronto gardeners. At the end of the centre table were four Cauliflowers from Wade & Jeckell, Port Hope, of a very large size and finely formed. Some specimens of the Martynia from, Mr. Fleming and Professor Croft. There was a large display of Onions, some very extraordinary specimens from Baron de Longueuil of Kingston. Mr. Leonard Pears, of Yorkville, had some very fine Chicory in the root, and several specimens of manufactured Chicory from roots raised by them this season. The Baron Longueuil displayed also some large purple eggs and table carrots. There were fine beets from the garden at Elmsley House.—

Two large floral ornaments, one from Mr. Fleming and the other, a most elaborately constructed one, from Mr. Lesslie. Several extraordinary sunflowers, one about 10 feet high with a head about 18 inches in diameter. Two tubs of annuals from Mr. Maynard, Upper Canada College, very neatly arranged; two immense pumpkins and a large variety of squashes from Mr. Gordon of Yonge St.; a large specimen of garden seeds from Mr. Fleming, a basket of vegetables from Mr. Maynard, and a small Jerusalem cherry plant; a fine assortment of apples from Mr. Grainger of Yonge St.; some pretty bottled gooseberries from Enoch Turner; a large assortment of extraordinary sized Tomatoes from various Toronto Gardeners; twenty varieties of apples and pumpkins from Captain Shaw, and some nice specimens of musk melon.

MECHANICAL HALL.

In the Mechanical Hall were iron folding doors from Beckett's foundry and Vale's foundry, strong substantial and beautifully finished:—a variety of forcing glass of a new design, and a grape preserving glass for hanging against the wall, from Mr. Hamilton, Church Street; a great variety of cordage from A. D. McGregor, Dundas Street; and from A. Ferrier of Hamilton. A box of beautifully prepared saleratus from Mr. Daniels of Brooklin, C. W.:—Leather in great varieties; a very fine description from P. Mackay of Dundas, manufactured by himself; some good patent leather from Mr. Izard, Queen Street West. Crockery in various patterns; ram water filters, by John Kedzie of Rochester, a useful and most convenient apparatus, value \$5 to \$10; one of these will filter one gallon in fifteen minutes; three cooking stoves and two parlour stoves from Macklem's Chippawa Foundry. The parlour stoves were of a new construction with sliding doors, valued from \$10 to \$12. Macklem's foundry is the largest in Canada; medicine in all its varieties from Lyman, Bros.; a large assortment of axes and cutlery of various sorts from Henry Date of Galt, C. W.; a model of Seymour Morgan & Co's New York Reaper, a little changed from McCormick's to evade the patent; a gun and case from Philo Soper, London, C. W.; an assortment of stoves from Mr. Cheney in various designs; some scythe snaiths from William Allchin of Paris, C. W. of a new and very much improved pattern; the buckle is so formed as to allow the scythe to be set back or forward as required, and it is screwed firm down so as to be immoveable when working; an improved shower bath from Esmond & Hill Adelaide Street. This bath is so constructed that the body only may be showered from a lateral perforated tube that circles round the pipes; the ordinary perpendicular shower is also given if required. Connected with it are two foot-baths, in which the feet may be steaming in hot water while the head is cooling down by the shower. This is a very good construction of Bath and is valued at £6 5s. Downs & Co. of Seneca Falls New York had a large display of force pumps of all sizes and descriptions. There were eight or ten pairs of beautifully finished Harness from Stovell and Holmes, Kingston, C.W. Mr. Samuel Shaw

had one case of very fine Edge Tools, consisting of axes, coopers tools, &c., in great variety. Messrs. Scott, Brothers, Lachine Canal, Montreal, had also a very fine display of Railway Picks, Edge Tools and beautiful Broad Axes. Thomas Moore exhibited some very pretty hammer handles for watchmakers. Mr. Mossiman exhibited some Baths. Mr. Leavitt, Dundas, C.W., had some fine specimens of Cast Steel Axes, and other Edge Tools. In this department of manufacture, Mr. Date, of Galt, made the most creditable display, all things considered. Mr. McNaughton, & Co., of Dundas, exhibited Boot Trees and Lasts of a superior description. Mr. Ashfield and Mr. Green were great in rifles. Mr. Cowing & Co., Seneca Falls, New York, had some very large forcing pumps. There was one fine small garden engine, value \$25 highly finished, others at \$20. These engines are calculated to throw water to 60 feet, and of great use. The forcing pumps are valued at \$20, some small pumps for common use, worth \$4 and upwards. Mr. Peter Freeland had a most beautiful display of fine soap in all its varieties. There was also one of Philips' Fire Annihilator. Mrs. M. Andrews, had some very pretty specimens of Wire Netting in great varieties for fences, and also for kitchen fire protectors. Orders for this kind of work, left at Mrs. Dunlop's, will be attended to. The Yale Magic Bank Lock, value \$150, and a superior store lock value, \$20, were worthy of notice; these are manufactured by Prescott of Buffalo and are certainly most ingenious contrivances to guard against burglars.

MECHANICAL TENT.

In the Mechanical tent were some fine specimens of Smith's bellows;—a very handsome leather trunk, with five iron frames; three hunting saddles, a finely quilted side-saddle, and a round bridle, from Mr. Griffith saddler, Toronto;—a very elaborately quilted side-saddle in an entirely new design and of very superior workmanship, from Mr. Edwards, Yonge St., valued at \$50;—a four panel door from Thomas Thomson; a variety of saddlery from Mr Stewart, Yonge St; two specimens of very fine harness from T. G. Wallace Bradford; one set pleasure harness, silver mounted; some beautiful harness from Mr. T. Thompson, George street, Toronto, and some hames from John Calderwood of Paris; a highly furnished Child's carriage from Mr. Cooney of Cobourg, valued at \$100; a great variety of whips from J. Threlkeld Alice Street; some of them finely mounted with silver and tastefully finished;—a patent mangle with side leverage, from Mr. Murchy of Weston, valued at \$16; one smut machine. This, with the exception of a large, beautifully finished and elegant carpet, sewed by the ladies of Hamilton, completed the Mechanical tent.

AGRICULTURAL HALL.

The first, and perhaps the most attractive feature in Agricultural Hall, is an immense cheese from the farm of Mr. Hiram Ranney of Dereham, County of Oxford; it is 700 pounds weight, and of a very fine flavour. It is to be sent off to England after the Exhibition. Mr. Ranney exhibited

three other cheeses 100 pounds each, of the same manufacture. Mr. Ranney's dairy numbers 126 cows.—In this department there is more to attract the farmer than the uninitiated; there is butter in tubs and crocks, seeds of all varieties; and cheeses without number: a very fine display from Mr. Wade, of Cobourg,—Stilton, at 1s. 6d.; Double Gloucester, at 1s., and good Cheese, at 7½d. There was Fall Wheat—25 bushels from J. P. Carpenter, Townsend; Robert Turnbull, Dumfries; Isaac Anderson, West Flamborough; each of these specimens weighed 66½ pounds to the bushel. Lewis Mills, of Flamboro', also showed a very good specimen of two bushels. In Spring Wheat—W. Forfar, Scarboro'. Oats—J. Stodden, W. Gwillimbury and W. Wheeler, Scarboro'. Peas—W. Gordon, Whitby; and W. Gordon, Toronto. Indian Corn—W. McMacken's, Stamford. Clover Seed—Thomas Snider, York. Flax seed—Alex. Shaw, Toronto. Barley—P. R. Wright, Cobourg. On the centre table were several boxes of biscuits from Mr. Nasmith, exhibiting biscuit making in all its varieties.

THE POULTRY.

In the poultry department there are fine specimens of black Spanish, Shanghai, Dorkings, and Poland fowls from Mr. Horne of Toronto; beautiful geese from Mr. Daniel Lewis; white Turkeys from Colonel Allan, Cochin China fowls from Mr. Goodenough, and a display of ducks; with a large collection of beautiful pigeons of several varieties.

EDUCATIONAL DEPARTMENT.

At the West end of the Upper half of Floral Hall, a small continuation was made and fitted up by the Educational office, in order to display the great variety of school furniture of every description they have on hand. This was an interesting department, and very much attracted the attention of the teachers who visited the fair. All kinds of furniture can be supplied to schools from the educational department at a cheaper rate than they can purchase it elsewhere.

THE PROCESSION.

On Thursday there was a grand procession of the Stallions, Mares, and Young Stock; Bulls, Cows, and Calves, from the Show ground of the County of York Agricultural Society, Front Street, proceeding by way of King Street, York Street, and William Street, to the Exhibition Grounds, headed by the Toronto Brass Band in a carriage drawn by four horses. They arrived at the Show grounds, accompanied by an immense concourse of people, about half past 9 o'clock. The appearance of the Stock was beyond the most sanguine anticipations. There were 56 Stallions, 9 two year olds, 20 mares, mostly accompanied by their foals; one Jackass, 8 Durham Bulls, 5 Durham Cows and Calves, several Bull Calves and Heifers, three Devon Bulls, 5 Ayrshire Bulls, 3 yoke of Oxen; 2 very small Ponies, 1 very fat Ox, of enormous dimensions; 30 carriages, and considerable numbers of horsemen, among whom was Okah Tubbee in full Indian costume. The noble and favorite horse, Clyde, led off, as certainly the largest specimen on the ground, followed by 42 animals belonging to the heavy draught and Agricultural classes, among which were some of extraordinary power and beauty of action. One 3 year old colt attracted great admiration, and appeared an animal of great promise. The horses comprising these classes were, of course, the most numerous, partaking as they do of the useful, combined with the Beautiful. Some of the finest specimens were exhibited by Thomas Blanchard of Toronto; Joseph Ashford, Drummond-

ville, and Robert Robson of London. The President's Prize of £50 was awarded to the horse owned by Mr. Blanchard. There were not so many thorough Breds in the Procession, but some that were exhibited were very good—evidently possessing great speed, and taking them together, their equal has not been seen in this Province. Those owned by H. Huntingford, George Cooper, and N. H. Dickson, were much admired. After the horses, followed the Durham Bulls, which, so far as numbers were concerned, took precedence of all competitors. Baron de Longueuil, George Wilson, George Taylor, Hon. A. Ferguson, R. Wade, M. Jones, and others, had some very beautiful animals in the Procession. Baron de Longueuil carried off the First Prize. The Devons followed next, but there were but very few when compared with the Durhams. J. P. Gage, John Masson, R. Ferrie, G. F. Rykert, and D. Tye, were exhibitors, and each showed some superior stock. In the Herefords, Baron de Longueuil shone out conspicuously, and carried off prizes to the amount of £20 5s in this class alone. There were a good number of Ayrshires in the Procession, and the animals exhibited by J. B. Ewart, David Jones, Wm. Millar, Baron de Longueuil and R. L. Denison, were worthy of notice. Next came the oxen in yoke; and the yoke belonging to M. Lawrie, of Hamilton, were of great weight and power. In fat oxen—G. Pegler, of London, exhibited a monster, and as he moved along at a slow pace he looked more like a rhinoceros than an ox. Jonathan Scott, of Toronto, had also a good beast in the procession, which took the second Prize. Some splendid spans of matched carriage horses made their appearance interspersed throughout the procession, among which we noticed a span belonging to W. H. Dickson, Niagara, as being particularly good. Mr. John J. Pettit, of Saltfleet, and Hon. W. Allan, of Toronto, also exhibited a span each. In the greater part of the vehicles which joined the procession were to be seen good specimens. The matched draught Mares exhibited by Mr. Armstrong, of Markham, these deservedly ranked first; Wm. Miller, of Pickering, coming second. The whole stock made a very imposing display; the like of which has never been seen in Toronto, and was well calculated to impress strangers with an idea of the wealth and capabilities of the Province.

PRESIDENT'S ADDRESS.

FARMERS OF UPPER CANADA:—

The duty of delivering the Annual Address on this occasion, by the rules of the Society, devolves upon me, as the President of the Provincial Agricultural Association.

I wish for the sake of the intelligent farmers whom I see before me, as well as for the cause which we are all laboring to advance, that the duty had been assigned to one, who being at once a practical and scientific farmer, could have entered fully into the details of the noble art of agriculture, and shewn that science can be brought most advantageously to aid in its varied operations.

As I have had very little instruction or experience in agricultural pursuits, it cannot be expected that I should venture to discuss so important a subject, especially in the presence of those whose superior skill and science, fit them more to impart than to receive knowledge, in regard to this most essential branch of human industry. I must therefore content myself with directing your attention to such matters as have an obvious

bearing on the future progress of the country, and are intimately connected with the welfare and prosperity of the agricultural classes.

We have many blessings for which to be thankful to the Gracious Giver of all good.

Our lot has been cast in a land inferior to none, in all natural advantages—its soil is fertile—its waters are abundant and pure—its climate is favorable to the health of man—to the sustenance of all the lesser animals—and to the growth and ripening of all the various vegetable productions, which the necessities of man and beast demand. It has been frequently remarked, and I believe it is now freely admitted, by those best qualified to judge, that the splendid country which lies between Lakes Huron, Erie, and Ontario—as regards its forests—soil—climate and water—is not surpassed on the Continent of America—and it rests chiefly with ourselves, by a unity of purpose and action—by well timed efforts and proper exertions, rightly directed, to place it in a situation to rank as one of the finest agricultural portions of the world.

The land in which it is our good fortune to live, abounds in the richest mines of iron, copper and lead, and although we have not, to any extent as yet, discovered the gold of California and Australia, or the silver of Mexico and Peru—deeply imbedded in the bowels of the earth—it ought to be a source of the highest congratulation, that many of our industrious farmers have found abundance of these precious metals, in the laudable and profitable pursuit, of stirring the fruitful soil of their own farms.

We have an inexhaustible supply of lime and stone—free stone and granite—of gypsum and water lime or hydraulic cement—we have peat and marl in various parts of the Province, and even lithographic stone, a very rare production, is to be found of fine quality, in some of the Counties.

We have a climate and soil which will grow oats and peas, Indian corn, turnips, carrots, flax and hemp, as well as they are produced any where else,—and as respects wheat, the great staple of the country, it was with true Canadian pride, that I lately noticed in an article taken from the "American Miller,"—a standard authority, that the wheat raised in Upper Canada makes better flour than any wheat the American union produces—not even excepting the wheat grown in the far famed and justly celebrated "Genesee Valley." We have running along the whole front of our country, the noble River St. Lawrence, which furnishes us a highway to the Ocean. We can boast of a chain of water communication through that River, our Lakes and our Canals, the like of which is no where to be seen. Macadamized, gravelled, and plank roads, are being rapidly made in all the older parts of the country—nay, even in some, but recently settled. Railroads—the sure indication of increasing prosperity—are either in the course of construction, or are seriously contemplated, in all eligible directions. Improvements are to be seen on all sides. The people are industrious, prudent and moral, and are daily becoming more intelligent and enterprising.

Agricultural Societies have introduced and encouraged the best breeds of horses, cattle, sheep and swine—the best kinds of wheat and other grains, as well as improved agricultural implements, of various forms and descriptions. Through their exertions, and the introduction of ploughing matches, and other useful incentives to rivalry, a valuable change has been effected in the art of husbandry; straight furrows, clean fields, and a judicious rotation of crops, have been obtained. These improvements, aided by a praiseworthy competition amongst the farmers themselves, have secured such returns for their labor, that despite the low price of wheat hitherto, the agriculturalists are, as a class—I may venture to say, in a prosperous condition, if we may judge from the flourishing appearance of their farms, from their handsome and well built dwelling houses, their large and commodious out-houses and barns, and the highly improved character of their stock. These things, added to the creditable show which they make, on suitable occasions, with their excellent carriages and horses, and the comfortable and independent manner in which they live, betoken an advanced state of improvement amongst us, that cannot fail to bring with it a large share of happiness and contentment.

In our villages, towns and cities, the same progress is visible. The wilderness has become the thriving village—the lately insignificant village has become the busy and populous town—and the town of a few years existence has grown into acity, lit with gas, filled with throngs of busy people, and lined with shops, which, whether we look at their magnificent plate glass windows, massive doors or well filled shelves, would not disgrace Regent street or Oxford street, in London.

Correct styles of Architecture have of late years been introduced, and generally adopted, not alone in the chaste designs of our many public buildings, but by our enterprising citizens, in the erection of their splendid private dwellings. And landscape gardeners, find ample employment, in beautifying the grounds, and improving the outskirts of our large towns and cities.

On our Lakes, Rivers, and Canals, are transported every year, an increasing amount of the surplus productions of our Farms to other markets, and manufactured goods are brought back in their stead. These same Rivers and Lakes are now navigated by fleets of noble steamers, which for safety, speed, convenience and elegance, can scarcely be equalled—and our sailing craft, occasionally take in their loading on the shores of Lake Huron, and unship in the spacious Harbour of Halifax.

But whilst I am proud to acknowledge the rapid progress which has been made within the last ten years in all sections of the Country; I should prove false to our best interests, and greatly betray the trust you have reposed in me, did I not at the same time declare that I think there is still much room for improvement, and very great cause, indeed I am inclined to believe an imperative necessity exists for our Farmers to turn their attention to new sources of wealth.

From the first settlement of the country, Eng-

land has been our Market for whatever wheat and flour we had to spare, after supplying our own wants, and for years, we possessed the advantage of sending her these productions, at a mere nominal duty, whilst foreign countries were subject to a high tariff. But now, under the altered policy of England, no duty, or at best only a nominal one is levied on wheat and flour, let it come from whence it may—and we have, therefore, to compete in the markets of Great Britain, with the wheat—producing countries of the whole world, with France, Belgium, Germany, Russia, Turkey, Egypt, Australia, and the immense fields of the American Union.

In many of these countries, wheat can be produced cheaper than it has as yet been produced by us, because serf labor furnishes the grower the means of raising his crops at comparatively an inexpensive rate, and securing them with certainty when ripe, instead of being, as we are here, subjected to a heavy outlay of wages for the like service, and unable to procure hands, as is frequently the case, at the critical moment when they are most required. In others, the facilities for sending their productions to the English market are far greater and less expensive than ours; and as England now draws her supplies from so many different portions of the globe, a scarcity in one country would not materially, if at all, affect her markets,—inasmuch as that scarcity, in ordinary cases, would hardly reach the other wheat growing countries which supply her; and the result of the recent English elections holds out to us little inducement to hope for any decided change of policy in our favor.

Such then being evidently the state at which we have arrived, our farmers should consider well, whether by the introduction of more labor-saving machines, and by better management on their farms, they can reduce the cost at which they have hitherto raised this staple commodity.

The wheat crop is a beautiful one—delightful to contemplate—associated with the most cheerful and animating reflections; nothing can be more pleasing to the eye of a philanthropist than waving fields of golden grain. Our farmers have arrived at a high degree of skill in its production. Its cultivation tends to keep their farms in good condition, and it answers well in a regular rotation of crops; but if it cannot be delivered at our mills or storehouses at about three shillings and sixpence currency per bushel, I fear it must cease to be our staple production. In the neighborhood in which I live, the reaping machine has been freely used by our best farmers this year; but whether this will effect a sufficient reduction in the cost of raising wheat I leave for those more competent to decide than I am.

It must be observed however, that whilst the price of wheat has of late years been declining, happily the price of meat, has been rising; and there is reason to believe, that the present high price of the latter will be maintained as steadily as will the low price of the former. The change has been caused in a great measure by the American Railroads, which have carried our meat to supply the constantly increasing wants of New York and the other great Atlantic cities. This is

one of the effects of railroads, felt not only here but in Europe, where the large towns and cities are no longer dependent for the supply of their butchers' meat, fish, vegetables and coarse grains, on their immediate neighbourhood, but draw them from distant places. London market is supplied in part with vegetables raised in Somersetshire, with meat butchered in Yorkshire; whilst her breakfast tables are often furnished with fish, caught the evening before on the Coasts of Scotland. Similar results will be obtained here, by the establishment of the great system of railways now contemplated throughout the country; distance will be annihilated and prices more generally equalized—agricultural produce will be benefited, not excepting the coarser grains, to which the attention of farmers ought, to be more directed than hitherto.

In raising more stock than in times past it is hardly necessary for me to point out, that the improved breeds, so far as practicable, should be carefully selected. They appear by nature, to lay on flesh faster, and more easily, than our native stock, and as meat is here supposed to be the object of the farmer's attention, there can be no doubt, if one breed will make the same amount of meat at three years' old, that another breed, with the same feeding and care, will make at four or five years' old, which of the two it would be more profitable to select. But no breeding will cause animals to thrive, unless they are well sheltered and well fed, and this should be the peculiar care of the breeder. If they are to be left exposed to the rigours of the winter, I doubt not our native cattle would prove superior to the highest bred cattle in the country; but no one who intends to make a profitable business by breeding stock, will try the powers of his animals in this way. It is an unquestionable fact, attested by numerous experiments, that animals, much exposed to cold, eat far more than those kept in warm places, the theory being, that the food in the one case is absorbed in raising the heat of the body to the same degree of temperature, as is attained in the other case by shelter—and it is easy to be seen, that additional shelter can be more cheaply furnished than additional food. It is true, we have to contend against long and tedious winters, which entail a heavy expense on the breeders of stock; but the introduction of the mowing machine, which cuts the heaviest grass at a cost of about 2s. currency per acre, and lays it so that it requires little or no spreading, coupled with the use of the horse rake, will enable our farmers to raise larger crops of hay, than they have hitherto done, and secure them at a much more moderate rate. And if in connexion with this, they will turn their attention to the cultivation of turnips, mangel-wurtzel and carrots, for winter food, I feel persuaded they will find, in the ready sale of their fat cattle and sheep at the proper seasons ample rewards for their care and labour.

Following up this latter suggestion, I would strongly recommend to the Board of Agriculture, that the liberal donation of twenty pounds made to this Society by His Excellency the Governor General, to be applied to such objects connected with the Association as in their opinion would be most likely to conduce to its interests—but which

donation, as I stated at our public meeting last night, had unfortunately come to my hands too late to be included in the prizes for this year—should be appropriated exclusively to the encouragement of this branch of husbandry, and be competed for as a new and distinct prize at the next Annual Fair.

Another branch of husbandry, which ought to engage our particular attention, is the production of Cheese, and a larger quantity of Butter than we have been in the habit of making.

A large amount is annually paid to the Americans for cheese. The dairyman who makes it has his profit—the wholesale dealer to whom he sells, has his—the grocers from whom we buy, have theirs—and our retail dealers, are not without their profit—all of which, in addition to the customs duty—the Canadian consumer has to pay, while it is notorious that we have, in certain sections of the Province, such pastures as are well calculated to encourage our farmers to take an active interest in this branch of industry, and surely they possess all the skill, knowledge and capital necessary, to enable them to make an equally good article, and to save the profits which are thus paid to others.

It must be admitted that a large quantity of butter is now exported, but it is nothing in comparison with what it ought to be, and no doubt would be, if more attention were paid to the preparation of it for market, and proper care taken to provide succulent food for cows all the year round. For this purpose, carrots and mangel wurtzel should be grown both of which thrive well in most of our soils, if properly enriched—and have the peculiar merit of being very free from disease, and the depredations of insects—and more attention should be paid to a succession of grasses. In England, good pastures are secured by the judicious selection of such grasses, as give a succession of flowers, at different seasons of the summer, a plan which we might most profitably adopt here, and with the aid of plaster of Paris, we should be able to carry our cows through the driest season, in full milk.

The demand for horses is very great, and will doubtless for some time continue.

Large numbers are every year exported to the neighbouring States, where they are readily sold at high prices, and strong inducements seem to offer, why we should persevere in raising them.

Until lately, that care in breeding distinct horses which has placed the English horse in the first rank in the world, even before the celebrated Arabian, was not paid to the breeding of horses in this country, our horse generally speaking, has been the horse of all work, and a very excellent and useful animal he has proved himself, but now that we have a certain sale and good prices, it is most important that the breeding of the different kinds should be kept more distinct, thus greater certainty in securing the animal for the purpose intended could be counted on, and less cause would be given for disappointment or complaint.

At the prices which are likely to rule for some time to come, there is nothing that the farmer can produce [if his land be suitable for the purpose,]

which promises a better return for the time and labour bestowed, and the expense incurred, than the breeding of horses, but great care must be taken in the selection of the animals, from which it is intended to breed, whether for draught, for speed, for the carriage, or for light work. And the introduction of pure blood, and horses of sound constitutions, cannot be too highly recommended.

A little judgment and management in raising them, in keeping them in good growing condition, without pampering them, when young, and in carefully and thoroughly breaking them for use, will always enable us to command remunerating prices.

But whether we continue, as we have heretofore done, to regard Wheat as the great staple of the country, and so confine ourselves chiefly to its production, or whether we couple with it and employ, to a greater extent than hitherto, the means of obtaining wealth from other sources, as I have ventured to suggest, nothing can be more clear than that to be successful, we must pay more attention to the preservation and the use of manures.

The virgin soil does not require it, but in many parts of the country it is greatly needed, and much land is comparatively unproductive, for the want of it. It is a subject which well deserves the most careful consideration. Upon it depends in a great measure the very existence of your art. In Germany and Switzerland, where the other branches of husbandry are much inferior to ours, where their ploughs are of the most rude and primitive construction, and where their most common team is a pair of milch cows, they far surpass us in the making and care of manures.

Each farm yard is supplied with several tanks or cisterns, into which all the rough manure and the refuse of the house are thrown—into these again is carefully led, all the liquid manure made in the stables and barn yards—to which is added, from time to time, a sufficient quantity of earth to absorb all the ammonia that would otherwise escape. With this the land is annually dressed; and thus are farms kept in good order and condition, which without it, would soon become barren fields.

In connexion with this subject, I would strongly recommend the use of minerals—such as lime, and gypsum or plaster of Paris—on old farms, the supply of lime, which for years after the land was cleared, was found quite sufficient for all ordinary productive purposes, has become diminished, and requires to be replenished; and as this can be done, with such great benefits, and at so small a cost, in most parts of the country, it ought to engage the serious attention of those farmers to whom these imperfect remarks may apply.

Clover, which is so generally raised, and which will continue to be grown in increased quantities, as being the best winter food for horned cattle and sheep, and as affording such superior aftermath, requires a good deal of lime to feed on. I believe that gypsum is not considered a manure, but rather as a stimulant—its effects, however, on sandy soils especially, have long been known and acknowledged. By its judicious application,

some of the lightest soils in the country have been placed amongst the most productive, and very beneficial results have been obtained from its use, on other lands—and I am mistaken if our better farmers, are not every year applying it, more and more, as a dressing to their clover, oats, peas, and Indian corn, even on clay lands.

Spring crops generally suffer from drought in May and the early part of June. It is found that the application of gypsum draws down moisture from the atmosphere to these crops, at these seasons; and that the fields which have been dressed with it, retain their colour and continue to grow, while those on which it has not been used, become pale and sickly. The same effects would, no doubt, be felt by turnips, carrots and field beets, if this stimulant were applied to them.

The Canada Company, to which Agriculture in Upper Canada is largely indebted for its liberal premiums on wheat, offers also handsome premiums to the growers of flax and hemp, and as, through the enterprise and liberality which have always marked the course of their Chief Commissioner here, in respect to all matters connected with the welfare of the country, we have at this moment on the show grounds, in actual and successful operation, imported at the entire expense and risk of the Company, as an object well worth the attention of farmers, the most approved machinery for preparing the former article, without the long, uncertain, and expensive methods heretofore adopted, for dressing it, it is hoped that its cultivation will be extensively undertaken. It can hardly fail to be profitable. We have a large quantity of land, especially on the flats of our rivers, admirably adapted to the growth of this plant—and the many valuable uses to which it can be applied, render it highly essential that its production should be encouraged by every legitimate means. Not only is the fibre of the most extensive and important use, and would, no doubt, in many cases, be largely and profitably employed as a superior substitute for cotton, much of which we now import from the United States, but the seed also is most valuable, and would be found of vast importance to the country, for from it our linseed oils should be made, and oil cake extracted for the feeding of our fat cattle.

The successful growth of hemp, would not only save us a large annual outlay on the importation of cordage, but I can see no good reason why we should not, with proper arrangement, besides furnishing our own rope-walks with the raw material, now chiefly obtained from other countries, become exporters of the article to a considerable extent.

The failure of the usual market for wheat, will force us to direct our serious attention to the best means of supplying that defect, as well as to the production of new articles of consumption and export. As regards the former, the most obvious remedy would seem to be, the creation of a home market—by stimulating internal enterprise—encouraging shipping—establishing manufactures—promoting immigration—fostering a trade with our Sister Colonies—and protecting native industry in all its various branches. This would have a

direct and powerful tendency to raise up and increase a large consuming population, and afford the most certain market for the sale of our agricultural products.

Notwithstanding the longer route by the St. Lawrence as compared with the route by which the Americans reach the West Indies from their Atlantic ports, and notwithstanding some restrictions that exist upon the trade, but which are not of sufficient importance materially to interfere with it, there is nothing to hinder an extensive and profitable commerce being carried on between our own ports and those islands, but the fitting out or building vessels suited for the purpose, and a proper spirit of enterprise being infused into our people. The Americans send to that market a large quantity of produce, which they buy from us, and they bring back in its stead the productions of that country to be sold by them for the supply of our grocers—thus not only giving profitable employment to their vessels, but making a fair gain out of the adventure. Why should we not imitate this example—remove the present restrictions—encourage the building of vessels adapted to the business, and instead of allowing these profits to be made out of us by foreigners, boldly contend for, and secure a valuable trade, which legitimately belongs to us.

I am strongly of opinion, that we import too much and manufacture too little. Whilst wheat always brought a remunerating price and a ready sale, we could perhaps afford to import largely, but now that the price of it is low, and likely to remain so, our attention ought to be turned in earnest to the supply of our own wants, as far as practicable.

It may be out of our power at present to manufacture the finest articles we use, in woollens, cottons, linens, and hardware; but I believe, with proper skill and management, that much more might be done, in these respects, than has been.

The demand for our coarse woollens is far greater than the supply. The only cotton manufactory ever established in Upper Canada found ready sale for all the coarse cottons it could make, at prices which would have paid well under good management. Linen has almost ceased to be made, but it is to be hoped that the same impulse to the raising of flax will be given here that has been given in Ireland, and that not only many little wheels and handlooms will be set in motion in our farm-houses, but also that large linen manufactories will soon be erected and carried on, in places where so much valuable water is now literally running to waste.

It is astonishing to look at the number of articles for which we are indebted to our neighbours across the line, all of which we could and ought to make ourselves. They furnish us with a large quantity of the axes which we use; many of the carpenters' and coopers' tools; most of the brooms with which our houses are swept; the scythes with which our hay and grains are cut; rakes with which they are gathered; in many instances the machines with which they are threshed; the forks with which our manures are turned over and spread; the pails in which our

dairy maids collect their milk; and latterly, the very bags in which our wheat is carried to the mills.

They furnish the picks and shovels with which our canals are made, and our railroads are formed; the spades with which our gardens are dug, and the hoes with which the weeds are kept down; and often the seeds with which they are sown. To them also we are indebted for most of our books; and for a large portion of the coarse grey cottons now in use, not to mention other manufactured articles which are largely poured in upon us.

I have thus, at the risk of being tedious, entered somewhat into detail on the subjects noticed in this address, because I conceive a proper knowledge of these matters to be intimately connected with the future prosperity of the country. A great change has come upon us, on ourselves depends, whether it shall be for good or ill, no time could be better than the present for placing ourselves in a right position. Undoubtedly, large sums of money will be expended here, during the next four years, in the construction of railways. If instead of sending that money out of the country, to purchase the manufactures of other lands, we could induce our people to expend it in the establishment of home manufactures, a most important and salutary step would be taken in the march of progress, and a solid foundation would be thus laid, on which to build up the future greatness and prosperity of the country.

A great diversity of opinion obtains, as to the standard by which the prosperity of a country shall be judged. Some instancing as proof, the large revenue derived from imports—others pointing to the excess of exports over imports, as the rule by which it is to be measured. I must confess that I am one of those who put most faith in the latter doctrine, and I shall be rejoiced to see the time when our trade returns will shew a nearer approximation to it, than now exists. Acting on this view, I have no hesitation in saying that our plans should be, as far practicable, *to raise and make all we need*. This will give ample employment to capital and labor, in the establishment and extension of our manufactures, and in the encouragement of the working classes; and possessing a home consumption for the produce of our farms, in our towns and villages, filled with industrious mechanics and skillful manufacturers, and relying with confidence on our own efforts, for the speedy attainment of national wealth, we shall be in a great measure independent of foreign countries, and have less reason to regret the hasty withdrawal of those benefits, which we formerly enjoyed in the British markets.

In conclusion, allow me to say, that the Legislature has done all that could be expected from it, to promote the cause of agriculture. Liberal grants are yearly made to our Societies—a Board of Agriculture has been established, to advance and foster its interests—provision has been made for an experimental farm—a Chair of agriculture has been placed in the Toronto University, and a gentleman eminently qualified for the discharge of the duties connected with it, has been called

to fill it. Lectures of the most valuable character, may be expected from that gentleman, and the results of all practical and useful experiments made by him, will be gladly communicated for the benefit of the Agricultural classes—and it now rests with the people of Upper Canada to say whether they will be discouraged because they have lost the former market for this staple production, or whether they will take a new start in the race of improvement, now evidently within their power—whether they will turn their attention to the new sources of wealth opening before them—and by the diligent use of the various means of information placed within their reach, become as skillful in the development of those resources, as many of them have become in the cultivation of wheat, and thus fulfil the high destiny for which this noble country was evidently designed by its all-wise and beneficent Creator.

THOMAS C. STREET,
P. P. A. A. of U. C.

Toronto, September 24, 1852.

PRIZE LIST.

CLASS A.—DURHAMS.

JUDGES.—W. McMicking, Joseph Ireland, Samuel Dickinson, John Hunter, John Sissons.

Best Bull.

1 Baron de Longueuil, Kingston, £6 10s; 2 Geo Wilson, Guelph, £4 0s; 3 John Taylor, Stamford, £2 10s; 4 E. Harrison, Chinguacousy, £1.

Best 3 years old Bull.

1 N. Davies, York, £5 10s; 2 Robert Raine, Gore, £3 10s; 3 Ralph Wade, jun., Cobourg, £2 0s; 4 John Wade, Port Hope, £1 0s.

Best 2 years old Bull.

1 Thos Hatt, Ancaster, £4 10s; 2 M Jones, Darlington, £3 0s; 3 William Dow, Whitby, £1 15s; 4 Aaron Barker, Etobicoke, £1 0s.

Best 1 year old Bull.

1 Ed Jones, Stamford, £3 10s; 2 E W Thomson, York, £2 5s; 3 William Gordon, Paris, £1 5s; 4 Hon A Ferguson, 15s.

Best Bull Calf of 1852.

1 N. Davies, York, £2 10s; 2 R Wade, jun., Cobourg, £1 15s; 3 do do £1; 4 Hon A Ferguson, 10s.

Best Cow.

1 John Howitt, Guelph, £5; 2 Ralph Wade, jun., Cobourg, £3; 3 S Parker, Drummondville, £2; 4 John P Wheeler, Scarboro, £1.

Best 3 years old Cow.

1 Ralph Wade, jun., £4; 2 E W Thomson, York, £2 10s.

Best 2 years old Heifer.

1 J. Howitt, Guelph, £3; 2 Ralph Wade, jun., Cobourg, £2; 3 Hon A Ferguson, £1; 4 do do, 15s.

Best 1 year old Heifer.

1 M. Jones, Darlington, £2 10s; 2 John Wade, Port Hope, £1 10s; 3 E W Thomson, York, £1.

Best Heifer Calf of 1852.

1 Ralph Wade, jun., £1 10; 2 A C Hamilton, St. Catharines, £1; 3 Ralph Wade, jun., 10s; 4 John Dew, York, 5s.

CLASS B.—DEVONS.

JUDGES.—Wm. Balkwell, J. P. Wheeler, J. B. Carpenter.

1 J. P. Gage, Wellington Square, £6 10s; 2 John Masson, Cobourg, £4 10s; 3 R. Ferrie & Co., Doon, £2 10s.

Best 2 years old Bull.

1 G. Z. Rykert, St. Catharines, £4 10s; no others.

Best 1 year old Bull.

Daniel Tye, Wilmot, £3 10s.

Best Bull Calf of 1852.

1 A. H. Farmer, Woodstock, £2 10s; 2 R. Ferrie & Co., Doon, £1 15s; 3 John Masson, Cobourg, £1.

Best Cow.

1 R. Ferrie & Co., Doon, £5; 2 Daniel Tye, Wilmot, £3; 3 John Masson, Cobourg, £2.

Best 2 year old Heifer.

1 J. P. Gage, Wellington Square, £3; 2 John Masson, Cobourg, £2; 3 Daniel Tye, Wilmot, £1.

Best 1 year old Heifer.

1 J. P. Gage, Wellington Square, £2 10s; 2 Daniel Tye, Wilmot, £1 10s; 3 R. Ferrie & Co., Doon, £1.

Best Heifer Calf of 1852.

1 J. Masson, Cobourg, £1 10s; 2 do do £1; 3 Daniel Tye, Wilmot, 10s.

CLASS C.—HEREFORDS.

JUDGES.—Wm. Balkwell, J. P. Wheeler, J. B. Carpenter.

Best Bull.

Baron de Longueuil, £6 10s.

Best 1 year old Bull.

1 Baron de Longueuil, £3 10s; 2 do do, £2 8s.

Best Cow.

1 Baron de Longueuil, £5; 2 do do, £3.

CLASS D.—AYRSHIRES.

JUDGES.—Gavin Caldwell, William Evans, John Walton.

Best Bull.

1 J. B. Ewart, Dundas, £6 10; 2 David Jones, Sidney, £4; 3 William Miller, Flamboro' West, £2 10s.

Best 2 years old Bull.

1 J. B. Ewart, Dundas, £4 10s.

Best 1 year old Bull.

1 Baron de Longueuil, £3 10s; 2 R. L. Denison, York, £2 5s.

Best Bull Calf of 1852.

1 P. R. Wright, Cobourg, £2 10s; 2 J. B. Ewart, Dundas, £1 15s; 3 do do, £1.

Best Cow.

1 J. B. Ewart, Dundas, £5; 2 do do, £3; 3 do do, £2.

2 years old Heifer.

1 J. B. Ewart, Dundas, £3; 2 do do, £2.

1 year old Heifer.

1 Baron de Longueuil, £2 10s; 2 J. B. Ewart, Dundas, £1 10s.

Best Heifer Calf of 1852.

J. B. Ewart, Dundas, £1 10s.

The Judges of Ayrshire Cattle beg to submit their regret at the limited competition in this class of animals, there being only 21 entered for 24 prizes. The competitors were also few. The Judges, if they had

the option, would not have awarded all the prizes when there were so few competitors. In the class of Cows, for instance, all were owned by one gentleman. The undersigned respectfully suggest the expediency of leaving to the discretion of Judges in future to withhold prizes, under such circumstances, unless in case of very superior merit in the animals exhibited. The Judges beg to recommend a lot of Highland Cattle, consisting of one Bull, a Cow and Heifer, which they conceive might be a very profitable breed of stock for some localities. Though of small size, they possess a form that is a sure indication of their propensity to fatten readily, and when fat their beef is said to be highly prized in the London market. All which is respectfully submitted.

CLASS E 1—GRADE CATTLE.

JUDGES—Richard Allan, Edward Jones, William J. Imlack.

Best Cow.

1 R. Kirkwood, Paris, £4; 2 J. Pearson, Whitby, £2 10s; 3 William Gordon, Paris, £1 10s.

Best 3 years old Cow.

1 John Cade, Whitby, £3 5s; 2 Matthew Jones, Darlington, £2 5s; 3 Thomas Hodgskin, Guelph, £1 5s.

Best 2 year old Heifer.

1 T. Hodgskin, Guelph, £3; 2 Jonathan Scott, Toronto, £2.

Best 1 year old Heifer.

1 J. Pearson, Whitby, £2 10s; 2 Thomas Hodgskin, Guelph, £1 10s; 3 John Cade, Whitby, £1.

Best Heifer Calf of 1852.

1 Thomas Hodgskin, Guelph, £1 10s; 2 William McMicking Stamford, 15s; 3 Wm. Dow, Whitby, 10s.

The Judges of Grade Cattle, in making their return beg to state that they have found much difficulty in awarding their premiums, in consequence of the close competition; but would remark that they consider the stock shown in this class well worthy of the premiums that have been awarded to them.

CLASS E 2—FAT CATTLE, ANY BREED.

JUDGES.—John Wade, Vicker Pert, Wm. Bright.

Best Ox or Steer.

1 George Pegler, London, £3; 2 Jonathan Scott, Toronto, £2; 3 Gideon Hood, Guelph, £1.

Best Cow or Heifer.

1 William Bishop, Niagara, £3; 2 John Gould, Scarboro', £2; 3, George Pegler, London, £1.

Best Yoke Working Oxen.

M Laurie, Hamilton, £3; 2, William Early, Esqueness, £2; 3, P. Armstrong, Toronto, £1.

FAT OX OR STEER, COMPETING FOR BUTCHERS' PRIZES.

1 Jonathan Scott, £10; 2 Peter Raymer, Markham, £5.

The Judges on Fat Cattle beg to express their thanks to Mr. Bird of Toronto, butcher, for his introducing to their notice the "Graziers Assistant" by which, with the use of a small sliding rule, any person can in an exceedingly short time ascertain the carcass weight of Oxen, Sheep, or Swine. They therefore, would recommend it to the notice of Farmers and Breeders generally. It is called the "Graziers Assistant," and published in England.

CLASS F.—HORSES COMPETING FOR THE PRESIDENT'S PRIZE OF £30.

JUDGES.—A. Alcorn, David Jones, John Barwick, J. P. Hough, John Kerr.

Thomas Blanchard, Toronto Township, £30.

Best Stallion for Agricultural purposes.

1 Thomas Blanchard, Toronto, £7 10s; 2 Joseph Ashford, Drummondville, £5; 3 Robert Robson, London, £2 10s.

Best Heavy Draught Stallion.

1 Mrs. Ward, Markham, £7 10s; 2 J. & W. Crawford, Scarboro', £5; 3 John Wilson, Whitby, £2 10s.

Best 3 year old Stallion.

1 William Waddel, Pickering, £5; 2, Isaac Modland, Chinguacousy, £3; 3, Robert Brown, Cobourg, £1.

Best 2 year old Stallion.

1 S Shunk, Vaughan, £3; 2, Peter Mussleman, Vaughan, £2; 3, William Chirry, Markham, £1.

Best 3 year old Filly.

1, Jesse Trull, Darlington, £2 10s; 3 William Cox Darlington, £2 10s; 3 William McMicking, Stamford, £1.

Best 2 year old Filly.

1, T. Lumsden, Whitby, £3; 2 Richard Ibson, Toronto Township £2; 3, William Fitzpatrick, York, £1.

Best Span, Matched Carriage Horses.

1, W. H. Dickson, Niagara, £4; 2, John J. Pettit, Saltfleet, £3; 3, Honourable William Allan, Toronto £1.

Best Span Draught Horses.

1, William Armstrong, Markham, £4; 2, William Miller, Pickering, £3; 3, Simon Shunk, Vaughan, £1.

Brood Mare and Foal.

1, J Brown, Etobicoke, £5; 2, Thomas Armstrong, Vaughan, £3; 3, William Trull, Darlington, £1.

Best Saddle Horse.

1, E. C. Jones, Toronto, £2; 2, J. Grantham, Toronto, £1 10s; 3, William Lafontaine, Toronto, £1.

CLASS G.—BLOOD HORSES.

JUDGES—Geo. Robson, Peter Davy, John Harland, O. Blake, Walter McKenzie.

Thorough-bred Stallion.

1, H. Huntingford, £7 10s; 2, George Cooper, York, £5; 3, W. H. Dickson, Niagara, £2 10s.

Thorough-bred 3 year old Stallion.

1, George S Ross, Toronto, £5; 2, James White, Trafalgar, £3; 3, William Shane, Toronto township £1.

Thorough-bred 3 year old Filly.

1, Joseph Holly, Weston, £4; 2, George Cooper, York, £2 10s.

Thorough-bred 2 year old Filly.

1, Judge McLean, Toronto, £3.

Thorough-bred Mare and Foal.

1, James White, Trafalgar, £5.

The Judges appointed to examine the aforementioned description of Horses, regret to say that the exhibition in this class is very limited; they hope, however, next year the few superior animals that have been exhibited will produce an improved and more numerous Stock.

CLASS H.—SHEEP, LEICESTERS.

JUDGES—Joseph Piers, Thomas Stock, Joseph Slagg, Wm. Beattie, Joseph Walton.

Ram, two Shears and over.

1, J. Dickson, Clarke, £4; John Miller, Pickering £1; 3, John Middleton, Clarke, £1.

Shearling Ram.

1, George Miller, Markham £2 10s; 2, George Miller, Markham, £1 10s; 3 William Nicholson, Guelph, 15s.

Ram Lamb.

1, Geo. Millar, Markham, £2; 2, Mathew Jones, Darlington, £1; 3 George Scott, Scarboro', 10s.

Two Ewes, 2 shears and over.

1, William Miller, Pickering, £4; 2 do do do £3; 3 Nathaniel Cooper, Toronto, £1 10s.

Two Shearling Ewes.

1, G. Miller, Markham, £3; 2, do do do, £2; 3 Nathaniel Cooper, Toronto, 20s.

Two Ewe Lambs.

1, Nathaniel Cooper, Toronto, £1 10s; 2 George Miller, Markham, 20s; 3 John Cade, Whitby, 10s.

SOUTHDOWNS.

Best Ram, two shears and over.

JUDGES—Gen. Harman, Samuel Parker, E W Thomson, Robert Gordon.

The Judges on fine wooled sheep in presenting their report to the directors beg to state that the show in South Down and Merino sheep, both in number and quality is creditable, and after a careful examination have awarded the premiums as follows :

1 Edward Jones, Stamford, £4; 2 John Spence, Whitby, £2; 3 William Ash, Thorold, £1.

Best shearling Ram.

1 Edward Jones, Stamford, £2 10s; 2 do do do £1; 3 John Spencer, Whitby, 15s.

Best Ram Lamb.

1 J Spencer, Whitby, £2; 2 Nathan Choate, Hope, £1 10s; 3 John Spencer, Whitby, 10s.

Best 2 Ewes, two shears and over.

1 E Jones, Stamford, £4; 2d best do do, £3; 3 John Spencer, Whitby, £1 10s.

Best 2 shearling Ewes.

1 Edward Jones, Stamford, £3; 2 do do £2; 3 John Howitt, Guelph, £1.

Best 2 Ewe Lambs.

E Jones, Stamford, £1 10s; 2 do do £1; 3 William Armstrong, Markham, 10s.

MERINOS AND SAXONS.

Best Ram, 2 shears and over.

N Choate, Hope, £4; 2 John Langstaff, Richmond Hill, £2; 3 N Coate, £1

Best shearling Ram.

John Langstaff, Richmond Hill, £2 10s; 2 do do £1 10s.

Best Ram Lamb.

N Choate, Hope, £2; 2 John Langstaff, Richmond Hill, £1; 3 Nathan Choate, Hope, 10s.

Best 2 Ewes, two shears and over.

Nathan Choate, Hope, £4; 2 do do £3; 3 John Langstaff, Richmond Hill, £1 10s.

Best 2 shearling Ewes.

John Langstaff, Richmond Hill, £3.

Best 2 Ewe Lambs.

D Knowles, Pickering, £1 10s; 2 Nathan Choate, Hope, £1; 3 do do 10s

FAT SHEEP.

JUDGES—M Jones, Baron de Longueuil.

Best 2 Fat Wethers.

W Miller, Pickering, £3; 2 Ralph Wade, Cobourg, £2; 3 do do £1.

Best 2 Fat Ewes.

William Miller, Pickering, £3; 2 James Pearson, Whitby, £2; 3 P Armstrong, Toronto, £1.

CLASS I.—PIGS.

LARGE BREED.

JUDGES—W Benson, G Docker, Benjamin Shaw.

Best Boar, one year and over.

Thomas Musson, Etobicoke, £3; 2 Gaylord Greeniaus, Toronto Township, £2; 3 George McKinlay, Trafalgar, £1.

2nd best Breeding Sow, one year and over.

1 Entry No 7, mistake in the entry; 2 John P Wheeler, Scarborough, £2; 3 George McKinley, Trafalgar, £1.

Best Boar of 1852.

Dempster Smith, Trafalgar, £2; 2 William Smith, Trafalgar, £1 10s.

Best Sow of 1852.

William Linton, Pickering, £2; 2 George McKinlay, Trafalgar, £1 10s; 3 Dempster Smith, Trafalgar, £1.

SMALL BREED.

Best Boar, one year and over.

W Jackson, York, £3;

Best Breeding Sow, one year and over.

M Lawrie, Hamilton, £3; 2 do do £2; 3 John P Wheeler, Scarborough, £1.

Best Boar of 1852.

Richard Allen, Darlington, £2;

Best Sow of 1852.

J P Wheeler, Scarborough £2; 2 do do £1 10s; 2 Richard Allen, Darlington, £1.

CLASS J.—POULTRY.

JUDGES—G Rykert, G W Allen, F. Widder.

Best pair of Dorking Fowls.

1 George Miller, Markham, 10s; 2 do do 5s.

Pair of Poland Fowls.

1 J G Horne, Toronto, 10s; 2 do do, 5s.

Pair of Large Breed Fowls.

1 R A Goodenough, Toronto, 10s; 2 J G Horne, Toronto, 5s.

Pair of Turkeys.

1 John Ross, Toronto, 10s; 2 Hon. William Allen, Toronto, 5s.

Pair of large Geese.

1 Daniel Lewis, York, 10s; 2 T Davies, Toronto, 5s.

Pair of Common Ducks.

1 George Miller, Markham, 10s; 2 T Davies, Toronto, 5s.

Best Lot of Poultry owned by Exhibitor.

R A Goodenough, Toronto, 10s.

Below we give a very neatly got up plan of the Grounds, drawn by the Editor of the *Family Herald*, and set up in moveable types for that excellent family paper. The plan exhibits the relative proportions of the Halls, Tents, &c., and gives a very clear and correct view of the Show Grounds.



COLLEGE AVENUE.

Entrance from College Avenue.



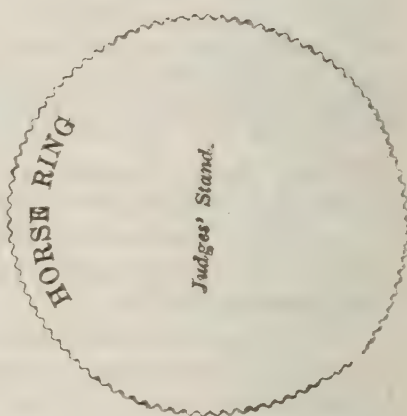
Bowling



Green:

Ticket Office.

Door.

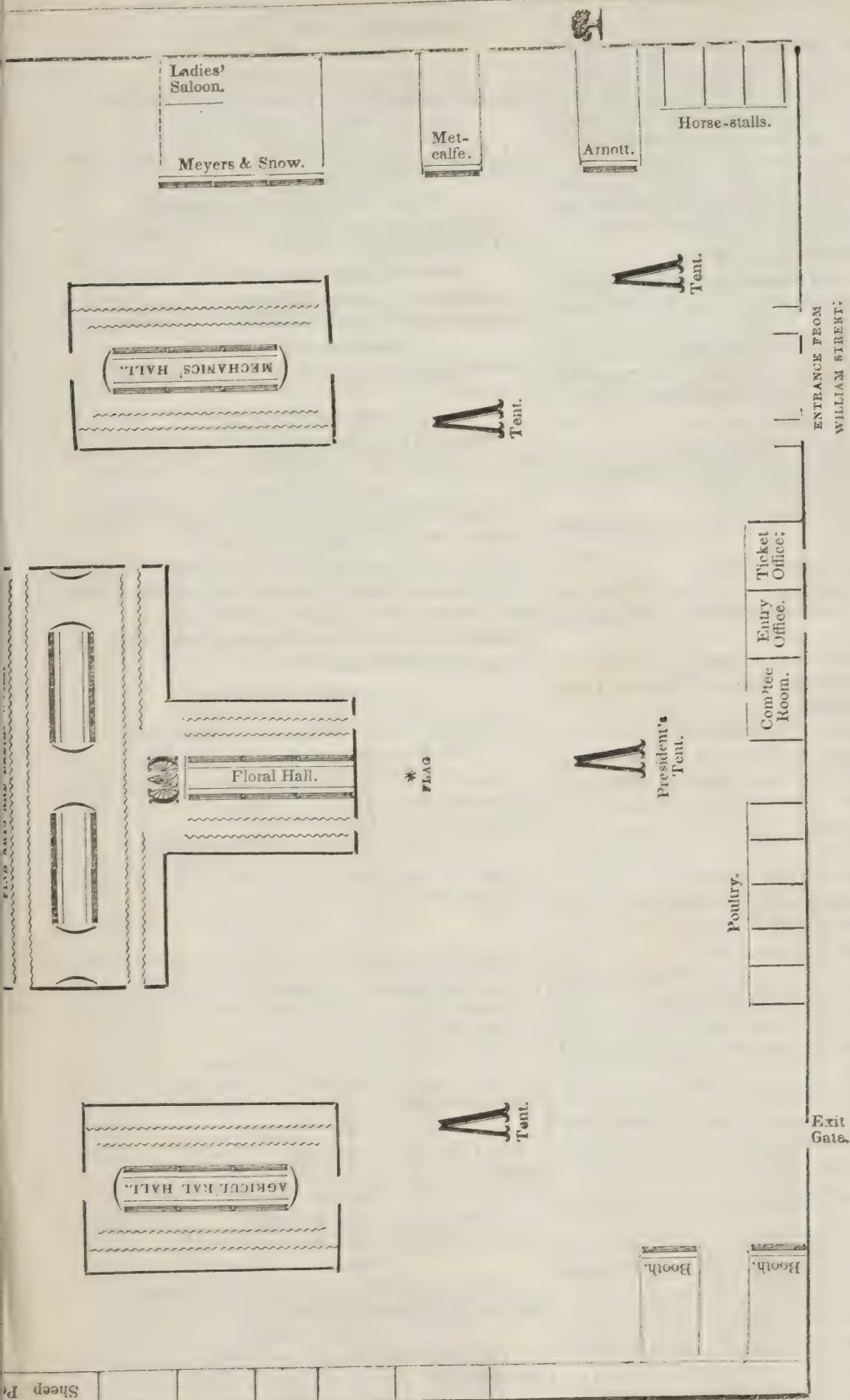


GROVE FOR CATTLE.

GROVE FOR CATTLE.

President's STAND.

COLLEGE AVENUE.



CLASS K.—AGRICULTURAL PRODUCTIONS.

JUDGES—Jos. Webster, James Williams, James L. Green, James Crawford, Wm Matthie, Thos Hatt, James Wright, James Rogers, J P Gage.

The Canada Company's Prize of £25.

For the best 25 bushels of Fall Wheat, the produce of Canada West, being the growth of year 1852. The prize to be awarded to the actual grower only of the wheat, which is to be given up to, and become the property of the Association, for distribution to the County Societies for seed. J B Carpenter, Townsend, £25; 2 (by the Association) Robert Turnbull, Dumfries, £10; 3 Isaac Anderson, West Flamborough, £5.

Two bushels Winter Wheat.

1 Lewis Mills, West Flamborough, 2l 10s; 2 John Smith, West Flamborough, 1l 15s; 3 B Johnson, Etobicoke, 1l 5s.

Best two bushels Spring Wheat.

1 W Forfar, Scarborough, 2l 10s; 2 W Patterson, Scarborough, 1l 15s; 3 J Smart, Darlington, 1l 5s.

Two bushels of Barley.

1 P R Wright, Cobourg, 1l 10s; 2 I Anderson, West Flamborough, 1l; 3 Alexander Shaw, Toronto, 10s.

Two bushels of Rye.

1 J Lafferty, Toronto, 1l 10s; 2 do do 1l; G Anderson, West Flamborough, 10s.

Two bushels of Oats.

1 J Stodders, W Gwillimbury, 1l 10s; 2 J P Wheeler, Scarborough, 1l; 3 J Guinty, West Gwillimbury 10s

Two bushels of Peas.

1 W Gordon, Whitby, 1l 10s; 2 W Parson, York, 1l; 3 John Dew, York 10s.

Two bushels of Marrowfat Peas.

1 W Gordon, Whitby, 1l 10s; 2 Henry Jennings, Markham, 1l; 3 Captain Shaw, Toronto, 10s.

Two bushels of Indian Corn in the ear.

1 W M Micking, Stamford, 1l 10s; 2 do do 1l; 3 Baron de Longueuil, 10s.

Bushel of Timothy Seed.

1 S Mills, West Flamboro' 1l 5s; 2 T Snider, York, 15s; 3 Isaac Anderson, West Flamboro', 10s.

Bushel of Clover Seed.

1 Thomas Snider, York, 1l 10s; 2 B Mitchell, Darlington, 1l; 3 W Early, Esquesing, 10s.

Bushel of Hemp Seed.

1 Alexander Shaw, Toronto, 1l; 2 do do 15s; 3 J Fewster, Whitby, 10s.

Bushel of Flax Seed.

1 Alexander Shaw, Toronto, 1l 10s; 2 J Dew, York 1l; 3 Abel Wright, Bathurst, 10s.

Swedish Turnip Seed.

1 J Smart, Darlington, 15s; 2 R Allen Darlington, 10s.

Bale of Hops, 112 lbs.

1 J Ritson, Oshawa, 2l 10s; 2 W McGrath, Toronto Township, 1l 10s; 3 J B Belton, London, 1l.

Bushel of Potatoes.

1 B Johnston, Etobicoke, 15s; 2 J Hogg, York, 10s 3 Thomas Snider, York, 5s.

Bushel of Swede Turnips.

Lewis Bate, 15s; 2 P Armstrong, Toronto, 10s 3 do do, 5s.

Bushel of White Globe Turnips.

1 P Armstrong, Toronto, 15s; 2 R L Denison, Toronto, 10s.

Bushel of Aberdeen Yellow Turnips.

1 P Armstrong, Toronto, 15s.

Bushel of Red Carrots.

1 Baron de Longueuil, Kingston, 15s; 2 P Armstrong, Toronto, 10s; 3 D Falkner, Toronto, 5s.

Bushel of White or Belgian Carrots.

1 J Sisley, Scarborough, 15s; 2 W Wilson, Etobicoke, 10s; 3 do do, 5s.

Bushel of Mangel Wurzel, Long red.

1 J Sisley, Scarborough, 15s; 2 Coxswell, Toronto, 10s; 3 James Shaw, Toronto, 5s.

Bushel of Yellow Globe Mangel Wurzel.

1 Baron de Longueuil, Kingston, 15s; 1 Mrs S A Boulton, Toronto, 10s; 3 R Stibbard, York, 5s.

Twelve roots of Khol Rabi.

1 W Gordon, Toronto, 10s; 2 Professor Croft, Toronto, 5s.

Bushel of Sugar Beet.

1 Baron de Longueuil, Kingston, 15s; 2 Alexander Shaw, Toronto, 10s; 3 R L Dennison, Toronto, 5s.

Bushel of Parsnips.

1 Baron de Longueuil, Kingston, 15s; 2 J. Orford, Toronto, 10s; 3 Mr Parrir, Toronto, 5s.

Four largest Squash for Cattle.

1 Alexander Shaw, Toronto, 15s; 2 Robert Baldwin, Toronto, 10s; 3 F Taylor, Davenport, 5s.

Twenty lbs. Manufactured Tobacco, Growth of C. W.

George Lewis, Toronto, 1l.

Broom Corn Brush, 28 lbs.

1 Alexander Shaw, Toronto, 1l; 2 do 15s; 3 do 10s.

The Canada Company's Prize for Flax.

1 Best 112lbs of Flax, R L Dennison, 6l & dip; 2 (by the Association) J Fewster, Whitby, 3l 10s; 3 Abel Wright, Bathurst, 1l 10s.

Canada Company's Prize for Hemp.

Best 112 lbs of Hemp, J Fewster, Whitby 4l; 2 (by the Association) do do, 2l 10s.

CLASS L.—HORTICULTURAL PRODUCTS.

JUDGES—S Thompson, N Mundie, George Ellwanger, George Rykert, Prof. Croft, Prof. Hind, Henry Piers and H. Parsons.

Varieties of Apples.

1 Geo. Leslie, York, 15s; 2 C. Barnhart, Toronto Township, 10s; 3 Captain E. Snider, York, 5s

Table Apples.

1 H J Brown, Niagara, 10s; 2 George Tattle, Toronto, 7s 6d; 3 J. Bales, York 5s.

Winter Apples.

1 C Barnhart, Toronto Township, 10s; 2 E Turner, Toronto, 7s 6d; 3 Palin, Toronto, 5s.

Varieties of Pears.

1 Geo. Leslie, Toronto 15s; 2 E C Campbell, Niagara, 10s; 3 Captain Snider, York, 5s.

Table Pears.

1 E C Campbell, Niagara, 10s; 2 do 7s 6d; 3 Giouare, Hamilton, 5s.

Winter Pears.

1 Mrs S A Boulton, Toronto, 10s; 2 C Barnhart, Toronto Township, 7s 6d; 3 — Giouare, Hamilton, 5s.

Plums (Dessert.)

1 Rev. E. Baldwin, Toronto, 10s; 2 — Coxswell, Toronto, 7s 6d; 3 T D Harris, Toronto, 5s.

Baking Plums.

1 Rev. E. Baldwin, 10s; 2 Hon. W. Allan, Toronto, 7s 6d; 3 George Leslie, Toronto, 5s.

Peaches, hot house.

1 Rev Schrieber, Toronto, 10s; 2 Mrs S A Boulton, Toronto, 7s 6d; 3 do 5s.

Twelve Peaches, open air.

1 James F Smith, York, 10s; 2 — Giouare, Hamilton, 7s 6d; 3 E C Campbell, Niagara, 5s.

Collection of Peaches, open air.

1 — Giouare, Hamilton, 10s; 2 E C Campbell, Niagara, 7s 6d.

Grapes, hot house.

1 Mrs S A Boulton, Toronto, 10s; 2 Sheriff Jarvis, Toronto, 7s 6d; 3 Mrs S A Boulton, Toronto, 5s.

Black Grapes, open air.

1 Thomas Barnett, Toronto, 10s; 2 E C Campbell, Niagara, 7s 6d; 3 J Lewis, Saltfleet, 5s.

White Grapes, open air.

1 Rev. E Baldwin, Toronto, 10s; 2 J Fleming, Toronto, 7s d; 3 Hon. R Baldwin, Toronto, 5s.

Pumpkins.

1 W Gordon, Toronto, 10s; 2 C Small, Toronto, 7s 6d; 3 B Farrell, Dundas Street, 5s.

Squashes.

1 Patin, Yorkville, 10s; 2 Hon. R Baldwin, Toronto, 7s 6d; 3 Hon. R Baldwin, Toronto, 5s.

Tomatoes.

1 Baron de Longueuil, Kingston, 10s; 2 Andrew Fleming, Toronto, 7s 6d; 3 Patin, Yorkville, 5s.

Cauliflower.

1 W Jeckell, Port Hope, 10s; 2 G Lewis, Toronto, 7s 6d; 3 H Turner, Toronto, 5s.

Cabbage (Summer).

1 J Grainger, Toronto, 10s.

Cabbage (Winter.)

1 J Orford, Toronto, 10s; 2 Alexander Shaw, Toronto, 7s 6d; 3 J Orford, Toronto, 5s.

Carrots.

1 Baron de Longueuil, Kingston, 10s; 2 A A Baker, Guelph, 7s 6d; 3 D Falkner, Toronto, 5s.

White Celery.

1 W Farrow, Toronto, 10s; 2 George Lewis Toronto, 7s 6d; 3 Baron de Longueuil, Kingston, 5s.

Red Celery.

1 J Fleming, Toronto, 10s; 2 Baron de Longueuil, Kingston, 7s 6d; 3 Mrs S A Boulton, Toronto, 5s.

Capsicums.

1 G Lewis, Toronto, 10s; 2 Professor Croft, Toronto, 7s 6d; 3 J D Humphreys, Toronto, 5s.

Egg Plants.

1 Baron de Longueuil, Kingston, 10s; 2 Thomas Barnett, Toronto, 7s 6d; 3 J D Humphreys, Toronto, 5s.

Blood Beets.

1 Rev Schrieber, Toronto, 10s; 2 W Gordon, Toronto, 7s 6d; 2 W. Margetson, Toronto, 5s.

White Onions.

1 J Orford, Toronto, 10s; 2 Baron de Longueuil, Kingston, 7s 6d; 3 H. Turner, Toronto, 5s.

Yellow Onions.

1 Patin, Yorkville, 10s; 2 G Lewis, Toronto, 7s 6d; 3 Baron de Longueuil, Kingston, 5s.

Red Onions.

1 J Orford, Toronto, 10s; 2 D Falkner, Toronto, 7s 6d; 3 Mrs S A Boulton, Toronto, 5s.

White Turnips.

1 R L Denison, Toronto, 10s; 2 H Turner, Toronto, 7s 6d; 3 do 5s.

White Beans.

1 John Dew, York, 10s; 2 E Snider, York, 7s 6d; 3 F Taylor, Davenport, 5s.

NOTE —Judges recommend some Lima Beans entered in the class extra prizes, 7s 6d.

Dahlias.

1 J Barnett, Toronto, 10s; 2 J Fleming, Toronto, 7s 6d.

Cut Flowers.

1 J. Fleming, Toronto, 10s; 2 G Lewis, Toronto, 7s 6d.

Green House Plants.

1 J. Fleming, Toronto, 1l; 2 J Fleming, Toronto, 15s; 3 W Campbell, Niagara, 10s.

Annuals in Bloom.

1 J Fleming, 10s; 2 W Campbell, Niagara, 7s 6d; 3 W Campbell, Niagara, 5s.

Floral Ornament.

1 George Leslie, Toronto, 1l; 2 J Fleming, Toronto, 15s.

Canada Coffee.

1 T Plews, Toronto Township, 10s; 2 W. March, Scarboro', 5s; 3 (discretionary) W March, Scarboro' 5s.

Water Melon.

1 J Hiskett, Niagara, 10s; 2 Hon. Robt. Baldwin, Toronto, 7s 6d.

Musk Melon.

1 Mr Humphreys, Toronto, 10s; 2 Mr Perrin, Toronto, 7s 6d; 3 J Hiskett, Niagara, 5s.

Collection of Dahlias.

1 T Barnett, Toronto, 1l.

Vegetables.

1 Baron de Longueuil, Kingston, 10s; 2 J Grainger, Toronto, 7s 6d; 3 H Turner, Toronto, 5s.

Best Two Bunches Grapes.

1 Mrs. S. A. Boulton; 2 Sheriff Jarvis, Toronto; Mrs S. A. Boulton, Toronto.

20 Roots Chicory.

1 S Pears, Yorkville, 10s; 2 A Shaw, Toronto, 7s 6d.

Chicory, manufactured from Roots grown in the Province this season.

1 J Barton, Toronto, 1l; 2 L. Pears, Yorkville, 10s.

The Judges in this class stated that they found the show of fruits very extensive, and generally of excellent quality, not unworthy of comparison with the contributions with which the Society has been favoured by our neighbours across the lake. The naming of the apples was in many cases incorrect, to which they recommend particular attention on future occasions. The show of vegetables and roots was also very good. The flowers were both few and inferior—doubtless from the dryness of the season. Upon the whole, there is every reason to be gratified with the result of the Exhibition in this department.

CLASS M.—AGRICULTURAL IMPLEMENTS.

JUDGES.—Henry N. Clifford, Ezra D. Priest, James Duncan, John Taylor.

Wooden Plough.

1 Isaac Modland, Etobicoke, 2l; 2 J McSherry, St. David's 1l 10s; 3 E & D McTavish, Darlington, 1l.

Iron Plough.

1 J McSherry, St David's, 2l; 2 E. & D McTavish, Darlington 1l 10s; 3 Wm Dunbar, Pickering, 1l.

Harrows.

1 G Holliday, Gore of Toronto, 1l; 2 James Wallis, Yorkville, 15s; 3 Isaac Clare, Toronto, 10s.

Fanning Mill.

2 Louis Houck, Markham, 1l; 3 do., 10s; only two exhibited, and those of inferior construction, which prevented the Judges from awarding the first prize.

Horse power Thrasher and Separator.

1 F H Medcalf, Toronto, 5l; 2 Haggert & Bros., Brampton, 3l; 3 R Sanderson, West Flamborough 2l.

Grain Drill.

1 Thos. Haggart, Brampton, 3l; 2 Jas. Braithwaite, Toronto, 2l; 3 R Holliday, Gore of Toronto, 1l.

Straw Cutter.

1 L Butterfield, Oshawa, 1l; 2 W & J Humphreys, Toronto, 15s; 3 P R Higley, Oshawa, 10s.

Smut Machine.

1 J Moscrip, Cobourg, 1l. 10s.

Grain Cracker.

1 D McPherson, Ancaster, 2l; 2 do. 1l. 10s.

Corn and Cob Crusher.

None. Entry No. 2 Corn sheller awarded 10s. [discretionary prize] J. L. Ebbles, Toronto.

Clover Machine.

1 W Griffin, Brantford, 2l.

Two Horse Waggon.

1 J Shuttleworth, Weston, 3l; 2 James Bright, Toronto, 2l; 3 J & G Walker, Erin, 1l.

Horse Rake.

1 G Holliday, Gore of Toronto, 1l.

Metal Roller.

1 Edward Beckett, Toronto, 2l 15s; 2 do. 2l.

Reaping Machine.

1 J Helm, Port Hope, 5l.

Mowing Machine.

1 J Helm, Port Hope, 5l.

Cultivator.

1 G Sampson, St. Catharines, 1l 10s; 2 Adam Shaw Guelph, 1l; 3 Thos. Brown, Bowmanville, 10s.

Root Cultivator, shewn by Samuel Hurlburt, Prescott, recommended a discretionary prize of 10s.

Set of Horse Shoes.

1 R Gaskin, Toronto, 15s; 2 J Johnson, Waterloo, 10s; 3 T Martin, Toronto, 5s.

Half dozen Narrow Axes.

1 G Leavitt, Dundas, 10s; 2 S Shaw, Toronto, 7s 6d; 3 C Vale, Toronto, 5s.

Half dozen Manure Forks.

1 Skinner & McCullough, Brockville, 15s; 2 J M Trickey, Clarke, 10s; 3 Skinner & McCullough, Brockville, 5s.

Half dozen Hay Forks.

1 Skinner & McCullough, Brockville, 15s; 2 do. 10s; 3 J M Trickey, Clarke, 5s.

Half doz. Scythe Snaths.

1 G Allechin, Paris, 15s; 2 George Glassford, Brockville, 10s; 3 Skinner & McCulloch, do., 5s.

Ox Yoke and Bows.

1 E C Scarlett, Etobicoke, 15s.

Grain Cradle.

1 George Glassford, Brockville, 10s; 2 Skinner & McCullough, do, 5s

Half Dozen Iron Shovels.

1 Skinner & McCullough, Brockville, 15s.

REMARKS BY JUDGES.—The Judges would beg to say that the majority of articles submitted to their inspection, is of a highly creditable description, and in many instances they have to regret their inability to award prizes; but they cannot close their remarks without expressing their confident opinion that a very great and decided im-

provement has taken place since the last Exhibition, in almost every department coming under their notice.

CLASS N.—DAIRY PRODUCTS, SUGAR, &c.

JUDGES—Thos. Page, Peter Fisher, Thos. Douglass.

Firkin of Butter, not less than 56 lbs.

1 Joseph Webster, Flamboro' West, 2l 10s; 2 John Moore, Etobicoke, 1l 10s; 3 F Taylor, Davenport, 1l.

Cheese, not less than 30 lbs.

1 H Ranney, Dereham, 2l 10s; 2 do., 1l 10s; 3 Alex. Wallace, Oro, 1l.

2 Stilton Cheese, not less than 14 lbs. each.

1 R Wade, jun., Cobourg, 2l 10s; 2 do., 1l 10s; 3 do., 1l.

Butter, not less than 20 lbs., in Firkins, Crocks, or Tubs.

1 J McCowan, Scarboro', 1l 10s; 2 J Lafferty, West Flamboro', 1l; 3 Thomas Snider, York, 10s.

Maple Sugar, 30 lbs.

1 B Mitchell, Darlington, 1l; 2 J. Boles, York, 10s; 3 D Smellie, Vaughan, 5s.

Sugar made by Indians.

2 Prize, Rev. Peter Jones, Brantford, 10s.

Starch.

1 J A Cull, Toronto, 15s; 2 J Ingleson, Toronto, 10s.

Soaps (collection assorted).

1 P Freeland, Diploma, and 15s.

CLASS O.—1. DOMESTIC MANUFACTURES.

LEATHER AND FURS.

JUDGES—C. B. Hewitt, W. Atkinson, T. D. Harris, E. F. Whittemore, J. Ridout.

Side Saddle.

1 W & R Edwards, Toronto, 1l; 2 John Griffith, Toronto, 15s.

Whips and Whip Thongs (collection assorted).

1 J Thelkeld, Toronto, 1l 10s.

Farm Harness.

1 T Thompson, George Street, Toronto, 1l 10s; 2 T G Wallis, Bradford, 1l; 3 W Stewart, Toronto, 10s.

Pleasure Harness.

1 W Stewart, Toronto, 1l 10s; 2 John Calderwood, Paris, 1l; 3 T G Wallis, Bradford, 10s.

Saddle and Bridle.

1 Field & Davidson, Hamilton, 1l; 2 do., 15s.

Travelling Trunk.

1 John Griffith, Toronto, 1l 10s; 2 J. Carter, Toronto, 10s.

Sole Leather.

1 G Gifford, Darlington, 1l 10s; 2 John Dunn, Cooksville, 15s; 3 P McKay, Dundas, 5s.

Upper Leather.

1 A C Lawrence, Vaughan, 15s; 2 Joseph Figg, Toronto Gore, 10s; 3 Porter McKay, Dundas, 5s.

Skirting Leather.

1 R Pointer, Churchville, 15s; 2 do., 10s; 3 P McKay, Dundas, 5s.

Bassil Skins.

1 J. R. Izzard, Toronto 5s, discretionary prize.

Patent Calf Skins.

1 J. R. Izzard, 10s., discretionary prize.

Patent Skirting.

1 J. R. Izzard, 15s. discretionary prize and Diploma.

Calf Skin, Dressed.

1 A McGlashan, York Mills, 15s; 2 A C Lawrence, Vaughan, 10s; 3 J. Dunn, Cooksville, 5s.

Harness Leather.

1 Adam Shaw, Guelph, 15s; 2 Porter McKay, Dundas, 10s; 3 R Pointer, Churchville, 5s.

Fur Hat.

1 Joseph Rogers, Toronto, 15s; 2 10s; 3 do., do., 5s.

Fur Cap.

1 Joseph Rogers, Toronto, 15s; 2 John Salt, do, 10s, 3 Lewis Marks, do., 5s.

Fur Sleigh Robe.

1 John Salt, Toronto, 15s.; 2 Jos. Rogers, do., 10s.; 3 John Salt, do., 5s.

Bootmaker's Work.

1 John S Blogg, Toronto, 15s; 2 John Polson, do., Diploma and 10s; 3 John S. Blogg, do., 5s.

CLASS O.—2. MANUFACTURES IN METAL, &c.

JUDGES—C. B. Hewitt, W. Atkinson, T. D. Harris, E. F. Whittemore, J. D. Ridout.

Silversmith's Work.

1 W C Morrison, Toronto, Diploma, and 2l.

Ornamental Cast-Iron Work.

George H. Cheney & Co., Toronto, Diploma and 1l 10s.

Coppersmith's Work.

1 J R Armstrong & Co., Toronto, Diploma, and 1l. *Iron Fire-Proof Vault Door (price considered).*

1 Charles Vale, Toronto, Diploma, and 2l; 2 Edward Beckett, do., discretionary, Diploma, and 15s.

Cooking Stove, with Furniture.

1 J R Armstrong & Co., Toronto, 1l 10s; 2 G H Cheney, do., 1l; 3 O T Macklem, Chippawa, 10s.

Parlour Stove.

1 G H Cheney, Toronto, 1l; 2 O T Macklem, Chippawa, 10s; 3 do., 5s.

System of Ventilating Buildings, with model and description.

1 F Tiffany, Toronto, 2l; 2 do., 1l.

Balance Scales.

2 Christopher Wilson, Toronto, 15s; 3 do., 5s.

Model Hot Air Apparatus.

1 Garth & Farmer, Hamilton, 1l 10s.

Steaming Apparatus for Feeding Stock.

1 J R Armstrong & Co., Toronto, 1l 10s.

Cooper's Tools.

1 H H Date, Galt, 15s.; 2 S Shaw, Toronto, 10s.

Bench Planes.

1 Thomas Nesbit, Toronto, 15s.

Hames.

1 J. Calderwood, Paris, 10s.; 2 Holmes & Co., Kingston, 5s.

Blacksmith's Bellows.

1 J Westman, Toronto, 1l 5s.; 2 Dallyn & Son, Hamilton, 15s.

Rifle.

1 P Soper, London, 15s; 2 James Ashfield, Toronto, 10s.; 3 S T Green, Toronto, diploma.

CLASS P.—CABINETWARE, CARRIAGES, &c.

JUDGES.—Alfred Perry, Montreal, Wm. Townsend, Hamilton, and Walter H. Dickson, Niagara.

Best specimen of Sawed Pine.

E. C. Scarlett, Etobicoke, 10s

Best specimen of Oak.

E. C. Scarlett, Etobicoke, 10s

Best specimen of Graining Wood.

L. Brabrant, Toronto, £1 10s; 2 Andrew Widdowson, Toronto, £1; 3 N. R. Leonard, Toronto, 10s.

Best Centre Table.

M. Bevis, Hamilton, £1; 2 Jacques & Hay, Toronto, 15s

Best Sofa.

W. Stoner, Hamilton, 3l; and also Diploma, on account of moveable arms.

Best 1 Horse Pleasure Carriage.

Holmes & Co., Toronto, 2l, and Diploma; 2 M. Hutchison, Yorkville, 1l 10s; 3 Holmes, Hewitt, & Williams, Toronto, 10s.

Best 2 Horse Pleasure Carriage.

Williams & Cooper, Toronto, 2l.

Best dozen Broom Handles turned.

S. Scarlett, Etobicoke, 10s

Best dozen Flour barrels.

Francis Silverthorne, Toronto Township, 1l; 2 Peter Dash, Lambton, 10s

Best Wooden Pail.

Jas Parker, Whitby, 5s.; and Diploma.

Best Wash Tub.

J. Parker, Whitby, 7s 6d.

Best Washing Machine.

Jas Searight, Toronto, 10s.

Best Churn.

W. G. Telfer, London, C. W., 15s.

Best 4 or 6 Pannelled Door.

Sam Pettigrew, Toronto, 15s.

Best Model Beehive.

Thos. Hatt, Ancaster, 10s; 2 Wm. Hugill, Gore of Toronto, 5s.

CLASS Q.—WOOLEN AND FLAX GOODS.

JUDGES—J. G. Bowes, T. J. O'Neill, and George Bilton.

Pair Woollen Blankets.

1, J. Patterson, Dundas, 2l; 2, J. Patterson, Dundas, 20s; 3 J. Patterson, Dundas, 10s.

Best Counterpane.

1, Barber & Brs., Esquesing, 20s; do do do 15s; 3 do do do, 10s.

Piece, 12 yds, Flannel.

1, J. Patterson, Dundas, 20s; 2, J C Bowerman & Co., Whitby, 15s; 3, do do do, 10s.

Piece of Satinet, 12 yds.

1, VanNess Disher, St. Catherines, 20s; 2, J C Bowerman & Co, Whitby, 15s; 3, Robert Collins, Pelham, 10s.

Piece Broad-cloth from Canadian Wool.

1, VanNess Disher, St. Catherines, 2l;

Piece Flannel, 10 yds., not Factory made.

1, Joseph Pilkey, Scarboro', 15s, 2, W D Bowerman, Whitby, 10s; 3 H Douglass, Scarboro', 5s.

Shawls, not Factory made.

1, Mrs. Hinman, Cobourg, 15s.

Piece Linnen Goods.

1, D Smellie, Vaughan, 15s; 2 A Wright, Bathurst 10s; do do do, 5s.

Samples of Flax or Hemp Cordage, not less than 28lbs

1 A & D McGregor, Toronto, 15s; 2, do do do, 10s; 3 do do do, 5s.

12 Linen Bags.

1, D Smillie, Vaughan, 20s; 2, do do do, 15s; 3, Abel Wright, Bathurst District, 10s.

REMARKS BY JUDGES. — We have examined the articles above referred to and commend the talent displayed in their production respectively; we cannot help expressing our regret at the very limited amount of articles in the Woollen and Linen lines presented for competition, and the entire absence of manufactures from persons who hitherto were among the most respectable and largest contributors. We hope the spirit evinced by the Association this year in the very large increase in the Prize List will be appreciated and serve as an incentive to increased efforts on future occasions.

CLASS R.—LADIES' DEPARTMENT.

JUDGES—Mrs. Scott Burn, Toronto; Miss Scott Burn do; Miss Wilson, do; Mrs Robertson, do; Mrs. Evans, Montreal.

Best Specimen of Crotchet Work.

Miss Galbraith, Church Street, 20s; 2nd Miss Isabella Atkinson, Toronto, 15s; 3 Miss Beard, Toronto, 10s.

Best Specimen of Woollen and Cotton Netting.

1 Miss McFarlane, Queenston, 15s; 2 Elizabeth Spencer, Whitby, 10s.

Best Specimen of Fancy Netting.

1 Mrs. Campbell, Brockville, 15s; 2 Miss Stanton, Toronto, 10s.

Best Specimen Fancy Knitting.

1 Mrs Rutherford, Toronto, 15s; 2 Mrs Reid, Elizabethtown, 10s; 3 Mrs. Hewlett, Toronto, 7s 6d.

Best Specimen of Embroidery.

1 Mrs. J. Cameron, Toronto 20s; 2 Mrs George Shaw, 15s; 3 Mrs J G Judd, Toronto, 10s; 4th discretionary, Mrs Christie, Niagara, 10s.

Best Specimen of Worsted Work.

1 Mrs John Cameron, Toronto, 15s; 2 Miss O'Hara Toronto, 10s; 3 Mrs Hewlett, Toronto, 7s 6d.

A chair by Mrs. Widder, Toronto, classed as a first prize article in worsted work, was awarded a diploma by preference.

The Hamilton worsted work carpet was also much admired and is accorded an *honorary notice* by the judges.

Best Specimen raised Worsted Work.

1 Mrs Haas & Sister, Toronto, 20s; 2 Miss E. Hewlett, Toronto, 15s; 3 Miss S. E. Mara, Toronto, 10s.

Best Specimen of Wax Fruit.

Miss Wilson, 15s.

Best Specimen of Wax Flowers.

1 Miss Clench, Cobourg, 15s; 2 Miss Wilson, Toronto, 10s; 3 Miss Bell, Toronto, 5s.

Best Specimens of Wax Figures.

Shown by Mrs W. B. Crew, Toronto, and done by Mrs T B Troughton, Liverpool England, *honorary notice*.

Best Pair of Woollen Socks.

1 Mrs. Hinman, Cobourg, 10s; 2 Mrs Moulton, 7s 6d; 3 Miss M. Hewlett, Yonge Street, 5s.

Best Pair of Woollen Stockings.

1 Miss M. Hewlett, Toronto, 10s; 2 Miss S A Holley, Weston 7s 6d; 3 Mrs Moulton, Yonge street 5s.

Best Specimen of Quilts.

1 Mrs H. E. Johnson, Toronto, 1l 5s; 2 Mrs A. Phoenix, Trafalgar, 1l; 3 Miss S. Chapman, Scarborough, 15s; 4th, discretionary, Mrs Rexford, a silk quilt, 7s 6d; Mrs. Moore Yonge street, discretionary, 20s.

Best Specimen of Gentlemen's Shirts.

2 Mrs Wanless, London, 10s.

Best Pair Woollen Mittens.

1 Mrs. Hinman, Cobourg, 10s; 2 Miss M. Hewlett, Toronto, 7s 6d.

Best Pair of Woollen Gloves.

2 Miss M. Hewlett, Toronto, 7s 6d.

Best Hat of Canadian Straw.

1 Mrs Thompson, Don, 10s; 2 Sarah Lundy, Chinguacousy, 7s 6d, 3 Mrs Stickles, Cobourg; 5s.

CLASS S.—FINE ARTS, &c.

AMATEUR LIST.

Historical Painting in Oil.

1 Miss Ida Jones, Brockville, 2l 10s.

Landscape, Canadian Subject in Oil.

1 Miss Jones Brockville, 1l 10s.

Animals in Oil.

2 R J Griffith, 1l 10s.

Portrait in Oil.

2 R J Griffith, Toronto, 1l

Portrait in Water Colour.

2 R J Griffith, 1l.

Animals, in Water Colour.

2 Miss H Campbell, Brockville, 1l.

Miniature in Water Colour.

Mrs S B Campbell, Toronto, 1l 10s.

Flowers, in Water Colour.

1 Miss E C Fitzgerald, Toronto, 1l; 2 Miss Balfour, Toronto, 15s.

Pencil Drawing.

1 Miss M Fitzgerald, Toronto, 1l; 2 Miss Bell, Toronto, 15s.

Crayon Drawing.

R J Griffith, Toronto, 1l.

PROFESSIONAL LIST—IN OIL.

Landscape, Canadian Subject.

1 Paul Kane, Toronto, diploma and 3l; 2 Robert Whale, Burford, C W, 2l.

Animals, Grouped or Single.

Paul Kane, diploma and 3l; F W Wright, discretionary prize, 1l.

Portrait.

1 Paul Kane, Toronto, Diploma and 2l 10s; 2 Paul Kane, Toronto, 1l 10s.

IN WATER COLOURS.

Landscape.

1 Wm Armstrong, Toronto, Diploma and 2l 10s.

Portrait.

1 Hoppner Meyer, Toronto, Diploma and 2l; 2 do do, 1l.

PENCIL AND CRAYON.

Pencil Drawing.

1 George Reid, Hamilton, diploma and 1l 10s.

Crayon Drawing.

George Reed, Hamilton, Diploma and 1l 10s; 2 G. Reid, Hamilton, 1l.

Coloured Crayon.

Wm. Armstrong, Toronto, diploma and 1l. 10s.

Daguerreotype.

Best collection, the exhibitor to have operated in Canada West for the last twelve months, E. J. Palmer, Toronto, diploma and 1l 10s; 2 Alex. Blakeley, Toronto, 1l.

Lithographic Drawing, Unprinted.

1 Hugh Scobie, Toronto, Diploma and 1l 10; 2 H. Scobie 1l.

Wood Engraving.

1 J Allanson, Toronto, Diploma and 1l 10s; 2 F C Low, Toronto, 1l

Engraving on Copper.

1 Hoppner Meyer, Toronto, diploma and 1l 10s: 2 Thomas Maclear, Toronto, 1l.

Seal Engraving.

Thomas Wheeler, Toronto, diploma and 2l.

Engraving on Steel.

Hoppner Meyer, Toronto, Diploma and 1l 10s.

Best specimen of Carving in Wood, David Fleming, Toronto, diploma and 2l; 2 Do do, discretionary prize 2l.

Ornamental Penmanship.

1 W A Dunlop, New Orleans, Gold Medal offered by a private individual; 2 Samuel Coyne, 10s.

Stuffed Birds, Peter Morgan, Toronto. 1l; 2 do Peter Morgan, Toronto, 10s.

CLASS T.—BOOKBINDING, PAPER, &c.

JUDGES—The same as in class S.

Best Specimen of Book-binding.

1 Hugh Scobie, by R. J. Oliver, Toronto, 1l; 2 Thos. Brown, Toronto, 15s; 3 Hugh Scobie, by R. J. Oliver, Toronto, 10s.

Best ream of Printing Paper.

1 Taylor & Bros. 1l; 2 Taylor & Bros. 15s; 3 Taylor & Bros. 10s.

Best Specimen Letter Press Printing executed since last Exhibition.

Thomas Maclear, Toronto, 2l 10s; 2 H. Scobie, Toronto, 1l 10s; 3 J. G. Judd, North American Office, Toronto, 1l.

CLASS—U.

Best Moccasins worked with Porcupine Quills.—Dr. Okah Tubbee, 5s.

CLASS V.—POTTERY.

JUDGES—Ralph Wade, Patrick Rose Wright, Sheriff Jarvis.

Best Specimen of Pottery.

John Davis, Yonge Street, 1l; 2 John Davis, Yonge Street 15s; 3 John Davis, Yonge Street, 10s.

Best Specimen Draining Tile.

1 Joshua Sisly, Scarboro' 1l; 2 Bailey & Brown, Bowmanville, 15s; 3 Joshua Sisley, Scarboro' 10s.

Best Dozen Bricks.

1 Mary Townsley, Yorkville, 10s.

Best Water Filter.

1 Bailey & Brown, Bowmanville, 15s.

CLASS W.

Foreign Stock and Implements.

JUDGES—Henry Parsons, Guelph; Geo Black, Cobourg; J B Marks, Kingston; Benj Marr, Markham; Hon. A. Fergusson, Woodhill.

Best Devon Bull—W. R. Booth, Mono Co. N. Y., Diploma, 2l 10s.

Best Stallion for Agricultural purposes—S. Powell, Niagara Co. N. Y., Diploma and 3l; 2nd do 3l.

Best Blood Stallion—N Farmum, Somerset, N Y, diploma and 3l; 2 George Price, Ogdensburgh, N Y, 3l.

Best Merino and Saxon Ram — Sharp & Taylor, Lockport, N. Y., Diploma and 1l 10s.; 2nd do 1l.

Best 2 Merino and Saxon Ewe—Sharp & Taylor, Lockport, N. Y. 1l 10s.; 2nd do 1l.

REMARKS by Judges on Foreign Sheep.—The Judges beg to express the great pleasure and satisfaction it affords them in adjudicating upon this pen of Rams and upon the five Ewes of the same breed, as they consider them superior to any of that breed exhibited here before.

Agricultural Implements.

Best Plough [Iron] J. Jeffreys, Montreal, Diploma and 1l.

Best Double Mould Board Plough, J Jeffreys, Montreal, discretionary, 15s.

Best Wooden Plough for all purposes—J. Rapalje, Rochester, N. Y. Diploma and 1l. 2nd do 15s.

Best sub-soil Plough—J. Rapalje, Rochester, N. Y. 1l.

Best Gang Plough—J Rapalje, Rochester, 15s.

Double Mould Board Plough—J Rapalje, 15s., [discretionary.]

Best Pair of Harrows—J. Rapalje, Rochester, N. Y. 1l.

Best Fanning Mill—H. Vandercook, Fulton, N. Y. diploma and 1l.

Best Horse Power Thrasher and Separator—J. Rapalje, Rochester, N. Y. Diploma and 2l 10s.

Best Horse Power Thrasher without separator—E. D. Hullock, Rochester, N. Y. Diploma and 2l., [discretionary.—The judges highly commend the principle and workmanship of this power, manufactured by Emery & Co, of Albany, N. Y.]

Best Root-seed Drill, or Barrow—J. Rapalje, Rochester, N. Y. 10s.

Best grain drill—J. Rapalje, Rochester, N. Y. [discretionary] Diploma and 1l.

Best Straw Cutter—E. Taylor, Thomas & Co. N. Y. 1l.

Best portable Grist Mill—J. Rapalje, Rochester, N. Y. Diploma and 2l 10s.

Best grain cracker—A prize awarded to a mill called a corn mill. No. 2, J. Rapalje, Rochester, N. Y. 1l 10s.

Best machine for cutting roots for stock—J. Jeffrey Montreal [Discretionary] 1l.

Best Corn and Cob Crusher—J. Rapalje, Rochester, N. Y. 1l.

Best Clover Machine—J. Rapalje, Rochester, N. Y. 1l.

Best Reaping Machine—T. R. Hussey & Co. Auburn N. Y. Diploma and 2l 10s.

Best Cultivator [Fallow] J. Rapalje, Rochester, Diploma and 1l 5s.

Best Drill cultivator—J. Jeffrey, Montreal, 10s.—[Discretionary.]

Best assortment of agricultural implements and edged tools—J. Rapalje, Rochester, N. Y. 5l.

DISCRETIONARY PRIZES

Awarded for articles not enumerated in the Prize List. The Judges the same as those upon the

various departments to which the articles properly belong.

HORSES, CATTLE, &C.

Yearling Filly, J. Quarrie, Pickering, 10s.
 Pair Shetland Ponies, J. F. Smith, York, 10s.
 Blood Mare, R. A. Goodenough, Toronto, 20s.
 Pacing Stallion, R. A. Goodenough, Toronto, 10s.
 Yearling Colt, George Cooper, York, 10s.
 Black Stallion, D. W. Shaw, N. Y., 20s.
 West Highland Bull, }
 do. do. Cow, } N. McLeod, King.
 do. do. 4 year old heifer }
 Awarded Diploma and 11 10s.
 Best Mule, Wm Wright, recommended by Judge Allen, 10s.

POULTRY, &C.

25 Coops Pigeons, 5s. J G Horne, Toronto.
 Black Java Fowls 5s. " "
 Spanish Fowls 5s. " "

FRUIT, HORTICULTURAL AND MISCELLANEOUS.

12 roots Salsify, A. Shaw, Toronto, 5s.
 12 roots Salsify, Prof. Croft, Toronto, 7s 6d.
 Collection of Verbenas, Prof. Croft, do. 7s 6d.
 Tobacco Plants, Henry Craig, St Catharines, 5s.
 3 Do do do do 7s 6d.
 2 bushels Vetches, Mark Watson, York, 10s.
 Specimen Grain, Roots, Seeds, &c., Wm. Lyman Montreal, 15s.
 Pop Corn, R. L. Denison, Toronto, 7s 6d.
 6 White Egg Plants, Hon. W. Allan, Toronto, 5s.
 12 Nectarines, Sheriff Jarvis, Toronto, 10s.
 Dish of Okra, Jas. Fleming, Toronto, 7s 6d.
 Dish of Martynia Probicidia, James Fleming, Toronto, 7s 6d.
 2 Melons, (South France) Mr. Humphreys, Toronto, 10s.
 Collection of Apples, C. J. Ryan & Co., Rochester, New York, 10s.
 Collection of Quinces, C. J. Ryan & Co., Rochester, New York, 10s.
 Collection of Dahlias, C. J. Ryan & Co., Rochester, N. Y., 10s.
 Collection of Peaches, John Donnellan & Nephews, Rochester, New York, 10s.
 Collection of Dahlias, J. Donnellan and Nephews, Rochester, New York, 5s.
 Collection of Quinces, do, 5s.
 Collection of Verbenas, do, 5s.
 Collection of China Asters, do, 10s.
 Lot of Bouquets, do, 10s.
 Collection of Pears (26 varieties) Frost & Co., Genesee Valley Nursery, New York, 10s.
 2 Table Bouquets, do do, 10s.
 12 Onions, Frost & Co., Rochester, N. Y., 10s.
 40 varieties Verbenas 10s.
 Specimen of Biscuit Baking, John Nasmith, Toronto, 10s.
 Bride's Cake, and best Soda Biscuits, Suppell & Brown Drummondville, 10s.
 4 bbls Flour R. Simmonds, Markham, 25s.

REMARKS ON FLOUR.—The greater portion of the flour were tolerably good, but being discretionary, the Judges do not feel that they should recommend more than the sum of £1 5s. for the best. As the different samples shown at Niagara two years since at the exhibition of the Association there, was decidedly of better quality. As to Pot Barley the Judges consider it a fair quality; and the Corn meal only of ordinary.

FRUITS AND FLOWERS, &c.—(CONTINUED.)

2 bottles Mustard, O. Crawford, Toronto, 7s 6d
 Bottled preserved Gooseberries, E. Turner, Toronto, 7s 6d

Best model Stock, R. Thomson, Waterloo, 5s
 Best lot Verbenas, James Fleming, Toronto, 5s
 85 varieties of Pears, Ellwanger & Barry, Rochester, New York, 15s

Best 35 varieties of Apples, do do, 5s
 Two varieties of Plums, do do, 10s
 Two best variety of Grapes, do do, 10s
 English Damson Plums, G. Tattle, Toronto, 5s
 Thirty-one varieties of Apples, Charles Powis, Greece, New York, 15s

Fifteen Varieties of Pears, do do, 5s
 Six Coxcombs, George Lewis, Toronto, 5s
 Six Red Cabbages, Wm Margetson, Toronto, 10s
 Red Dutch Cabbage, D. Faulkner, Toronto, 5s
 Four Red Cabbages, Wm Gordon, Toronto, 7s 6d

TOOLS, IMPLEMENTS, MACHINES, & MISCELLANEOUS.

Machine for Plaiting Whip Thongs—Wm. Medcalf, Toronto, diploma.

Improved Mangle—Thomas McMurdy, Weston, diploma.

Biscuit Machine—F W & T Gage, Rochester, New York, 30s.

Flax Machine—Canada Company, Toronto, diploma.

Double Force Pump—Down Co., New York, 5s.

Two Thimble Boxes for Waggons, Downs and Co. New York, 10s.

Garden Engine—Cowing & Co., Seneca Falls, N Y State, diploma.

Garden Tools—J M Trickey, Clarke, diploma and 20s

Garden Engine—Downs & Co., New York, 15s.

One dozen Cast-steel Hoes, Rapalje & Co., Rochester, diploma.

Four Meat Cutters, do, do, diploma.

Wooden Plough—Samuel Hurlburt, Prescott, 30s.

Wire Netting—Mrs. McAndrews, Toronto, diploma, and 10s.

Imported Iron Welsh Plough—J Kennedy, Toronto, 11.

Assortment of Brushes—C Fisher, diploma and 10s.

Field Roller—J Rapalje & Co, Rochester, N. Y., diploma and 15s.

Sausage Fillers, Do do do diploma and 40s.

Mowing Machine— Do do do diploma and 15s.

Garden Engine— Do do do diploma and 10s.

Sawing Machine, (recommended by judges for a prize, on account of its invention and construction by a Canadian youth)—R Wright, Cavan, diploma and 10s.

Cheese Press and Curd Mill—John Emir, Hamilton, diploma and 20s.

Seed Dresser—Wm Johnson, Toronto township, diploma and 5s.

Cider Mill and Press—J Fergusson, Eldon, diploma and 25s.

Model Full-rigged Brig—Alex Dingwall, Toronto, diploma.

Bedstead—Jacques & Hay, Toronto, diploma and 5s.

Chair— Do do do diploma.

Man-of-war ship full rigged—Archibald Sinclair, Toronto, diploma.

Set of Copper Furniture for Cooking stove—J. R. Armstrong & Co, Toronto, 15s.

Model of a Kitchen Range for coals—J R Armstrong & Co Toronto, diploma.

A Bath—H Piper & Brother, Toronto, diploma and 20s.

Fire Screen Stands—T D Parkes, Toronto, diploma, and 5s.

Lightning Rods—E V Wilson, Toronto, diploma and 15s.

Portable Oven—Marks Griffin & Co, diploma.

Vegetable boiler—J Rapalje & Co, Rochester, 10s.

Metal Beam Plough—Edward Becket, Toronto, diploma.

Music Stand—Do do do diploma and 10s.
 Specimen of Railroad Spikes—Richard Juson, Hamilton, diploma.
 Platform Scales—J L Brown & Co, New York, diploma, 20s.
 Shower Bath—Esmonde & Hill, Toronto, diploma.
 Saddlery Ware—Holmes & Co, Kingston, diploma.
 Roof Slate, from Kingsey, Eastern Townships, H Daly, Montreal, diploma and 20s
 Grape Preserver Forcing Glass, Cucumber-stretcher Picture, cut out in paper, [for the whole] diploma and 15s
 Piano Forte—J Thomas & Son, Toronto, diploma and 40s.
 Seraphine—T W White, Hamilton, diploma.
 Melodeon—do do do
 Specimen Block Letters—William Burt, Toronto, diploma and 20s.
 Model Stack—R Thomson, Waterloo, 5s.
 Specimen Cooperage—Philip Vollmar, Waterloo, 10s.
 Last and Boot-trees—D M Naughton & Co. Dundas, 5s.
 Shoe-pegs—R Mills & Co., Dundas, 5s.
 Fire Engine—Alfred Perry, Montreal, diploma, and award of 10l.
 Patent Carriage Springs—J S Jones, Brockville. dip. and 5s.
 Two-oared Boat—O Gormon, Kingston, diploma and 10s.
 Pair of Buggy Springs—Peter Mallaby, Weston, 10s.
 Four Rain-water Filters—John Kedzie, Rochester, diploma.
 Axe-handles and Watchmakers' Hammer-handles—Thomas Moon, Thornhill, 10s.
 Democrat Waggon—Peter Murdoch, Ancaster, diploma.
 Grain Cradle—E D Halleck, Rochester, 10s.
 Wardrobe—Jacques & Hay, 4l. and diploma.
 Telegraph Wire—Chatterton, Cobourg, diploma.
 WOOLLEN AND FLAX GOODS; FURS, &c., &c.; MISCELLANEOUS.
 Fur Carpet—L Marks, Toronto, (very deserving) diploma.
 Manteau Canadien —Stovel & Baines, Toronto, 10s.
 Overcoat—Do, do., diploma.
 Lady's Riding Habit—G. Harcourt, Toronto, 5s.
 Gentleman's Dress Coat—do do diploma and 5s.
 Black Frock Coat—Thomas Bilton, Toronto, 10s.
 Four Reversible Coats and one pair Pants—Hughes, & Co., 10s.
 Piece Cassimere—Robert Collins, Pelham, 10s.
 Assorted Shawls—M. Churchhill, Utica, N.Y., 15s.
 Woollen Shawls—D D Williams, Darlington, diploma and 10s.
 Woollen Yarn—Do do do 5s.
 Woollen Carpet and Piece Flannel,—Mrs. M L Hungerford, Waterdown, N Y, diploma and 10s.
 Wrapping Paper—Adam Shaw, Guelph, diploma.
 Dressed Flax—Abel Wright, Bathurst, diploma.
 Waterproof Oil Canvass —James R Izard, Toronto, diploma.
 Patent Cambric—Do do do diploma.
 A Banner—Luke Brenan, Hamilton, diploma and 1l. 10s.
 Boot Linings—Wm. Murphy, Yorkville, 10s.
 Assortment of Boas—Joseph Rodgers, Toronto, 10s.
 Lady's Muff—Do do do diploma.
 Specimen Lady's opera Boas and Cuffs, John Salt, Toronto, 10s.
 One Tom Thumb Hat, John Salt, Toronto, 5s.
 Hide of Carriage Top Leather, George Bender, Stamford, 20s.
 One dozen Leather Splits, and Driving Belt for Machinery, do. do. diploma.
 Scotch Collars, W. Gibson, Toronto, “

Assortment of Wigs, M. Bansley, Toronto, 15s.
 Specimen Glue, Samuel Carr, Toronto, dip.
 Specimen of Ground Bones for Manure. Peter R. Lamb Toronto, diploma and 20s.
 Whips. Myron Strong, Rochester, dip. and 10s.
 Concentrated Vinegar, A & L Meyer, Toronto, dip.
 Specimen of Wood rendered permanently durable, by a peculiar process—A Meyer, Toronto, dip.
 Waterproof Leather Polish, H. T. Sheldon, Buffalo diploma.
 Specimen of Drugs and Chemicals, W. Lyman, Montreal, diploma.

LADIES' WORK; THE FINE ARTS, &c.

Flowers in Water Colours, done some time, Miss Balfour, Toronto 10s.
 Hair Bracelets and Hair Watch-guards, Miss M'Donell, Edwarsburgh, 15s.
 Etchings on Linen, W. Armstrong, Toronto 10s.
 Marine Painting, do. do. 20s.
 Architectural Drawings, Do., do., £1 10s.
 Vase of flowers in oil, Miss M. Simpson 20s.
 Specimen of Ornamental Penmanship, W. A. Dunlop, New Orleans 20s.
 Velvet Painting, Miss Post, Picton, 30s.
 Monochromatic Drawing, Miss Davis, Toronto, 20s.
 Japanned and Enameled Table and Cabinet—Mrs. Hammond, Toronto, 1l 10s.
 Case Canadian Insects, W. Couper, Toronto 30s.
 Case Insect Architecture, do. do. 20s.
 Steel Finger Ring Engraved, Thomas Wheeler, Toronto 30s.
 Goldsmith's Work, W. C. Morrison, Toronto, 20s.
 Brass Time-piece, with Glass Shade, Jas. Miller Toronto 20s.
 Case of Dental Instruments, Charles Rahn, dip. and 20s
 Assorted Specimens of Manufactures in Gutta Percha Jas. E. Ellis, Toronto diploma.
 Specimens of Work in Bronze, do. do. dip.
 Assortment of Articles of Papier Mache do do dip. and 20s.
 Die Sinking and Impression, Jas. Jocelyn, Toronto 15
 Air Press and Bath for Treatment of Deatness, F. A. Cadwell, Toronto, diploma.
 Bowl and Ladle of Indian Manufacture, Rev. P. Jones Brantford 15s.
 Computing Scales, John Palmer, New York, diploma and 10s.
 Indian Collection and Dress—Dr. Okab Tubbee, dip.
 Specimen Honey—W Patton, Paris, C. W., 10s.
 Do, do, —Thomas Bell, Toronto, 5s.
 Do, do, —William Jaikes, Toronto, 5s.
 Friction Matches—John Daniels, Yorkville, 5s.

Books Received.

“Journal of the New Brunswick Society for the Encouragement of Agriculture, Home Manufactures and Commerce,” part 3rd, Fredericton, N. B.

“The Question of the Seigniorial Tenure of Lower Canada, reduced to a question of Landed Credit,” by A. Kierzkowski, one of the Directors of the Lower Canada Agricultural Society.

“The Journal of the United States Agricultural Society, No. 1,” Washington, D. C., August, 1852.

STILTON CHEESE.—In answer to several enquiries respecting the non-appearance of Mr. Parsons, of Guelph, among the competitors in this article at the recent Exhibition, we regret to say that severe and protracted sickness in his family has been the cause. Next year we hope to see Mr. Parsons occupying his usual position in this department.

ANNUAL MEETING.

The Annual Meeting of the Association took place in the committee room on the Show Grounds, on Friday, at 11 o'clock, A. M., the President, T. C. STREET, Esq., M. P. P., in the Chair.

Present,—William Mathie and C. P. Treadwell, Vice Presidents; E. W. Thomson, Chairman of the Board of Agriculture; Hon. A. Fergusson; Mr. Sheriff Ruttan; J. B. Marks; David Christie, M. P. P.; R. L. Denison and John Harland, members of the Board. The following delegates from County Societies were present:—John Stiles, Middlesex; Peter Fisher, Wentworth, Halton and Brant; Angus Cameron, Frontenac, Lennox & Addington; Henry Clifford, Simcoe; J. G. Rogers, Northumberland; J. P. Roblin, Prince Edward; Oliver Blake, Norfolk; Robt. Bell, Lanark & Renfrew; James Wright, Wellington, Waterloo & Grey; William McMicking, Lincoln & Welland; John Barwick, Oxford; and Joseph Stagg, Kent.

The following Resolutions were adopted:—

1 Resolved,—That Wm. Mathie, Esq., 1st. Vice President, be hereby elected President for the ensuing year.—Carried.

2. That Mr. Sheriff Treadwell be 1st. Vice President for the ensuing year.—Carried.

3. That David Christie, Esq. M. P. P., be 2nd Vice President for the ensuing year.—Carried.

4. That Richard L. Denison be Treasurer for the ensuing year, and that the Bank of Upper Canada continue the Bank of deposit.—Carried.

5. That the next Exhibition be held at the City of Hamilton, on the first Tuesday of Oct., and three following days.—Carried.

[The Mayor of Hamilton was present, and guaranteed a sum of not less than £500 to be raised by the citizens.]

6. That the warmest thanks of this Association are justly due and are hereby given to our esteemed President, Thos. Clark Street, Esq., M. P. P., for his liberal contribution to the funds of this Society, and the efficient manner in which he has discharged his duties during the past year.—Carried.

7. That the thanks of this Association be

given to R. L. Denison, Esq., for his services as Treasurer during the past year.—Carried.

8. That the thanks of the Association be given to the Mayor and Corporation of Toronto for their liberal grant of £800 towards the funds of this Society.—Carried.

9. That the thanks of the Association be given to the Agricultural Societies and other bodies for their contributions.—Carried.

10. That the thanks of the Association be given to John Bowes, Esq., Mayor of Toronto, and the gentlemen of the Local Committee, for the zealous and efficient manner in which they have discharged their onerous and numerous duties.—Carried.

11. That the grateful acknowledgments of the Association be given to the Ladies of Toronto and elsewhere, for their interesting and beautiful productions for the present Exhibition.—Carried.

12. That the thanks of the Association be given to Mr. Commissioner Widder for his zeal and liberality in the cause of Agricultural improvement in Canada; for the continuation of the *Canada Company's Prize of £25*, for the best 25 bushels of wheat, and likewise for their liberal premiums for Flax and Hemp, and for introducing at this Exhibition the newest and most approved machine from England, for the preparation of the same.—Carried.

13. That the thanks of this Association be given to the Proprietors for the gratuitous use of the beautiful and convenient grounds for holding the present Exhibition.—Carried.

15. That the thanks of this Association be given to the Judges for their valuable services on the present occasion.—Carried.

16. That the thanks of the Association be given to Mrs. W. H. Boulton for the use of the ground adjoining the Exhibition, for the purposes of the Association.—Carried.

16. That the thanks of the Association be given to the citizens of Toronto for the liberal hospitality which they have extended to visitors attending the Exhibition.—Carried.

17. That the thanks of the Association be communicated to the delegates of the Lower Canada Agricultural Society and those of the New York State Agricultural Society, for the honour of their attendance on the present occasion.—Carried.

The following propositions were submitted to the meeting by Angus Cameron, Esq. of Kingston, and referred to the Board of Agriculture for further consideration:—

“That it would be of great importance to the interests of agriculture throughout the Province that each county should be enabled to erect

buildings for the purpose of receiving and protecting all such productions as may be exhibited at County Shows, rather than continuing the present practice of erecting temporary buildings at great expense, and removing them after a few day's use.

"That it be recommended that the President of the Association and Board of Agriculture memorialize the Governor General in Council, to appropriate a sum of money, not less than £250 to each county, for the purpose of procuring land whereon to hold their annual exhibitions and erect buildings. This boon from the Government to be conferred only on such counties as shall procure by subscriptions an equal amount for the purpose of erecting such buildings as may be required."

Delegates from the Lower Canada Agricultural Society.—D. E. Leclerc, Esq., President; Wm. Evans, Esq., Secretary; A. Kierzkowski, Esq.

Delegates present from the New York State Agricultural Society.—Henry Wager, Esq., President; General Harman; John Butterfield, Esq.; S. M. Burroughs, Esq.; W. C. White, Esq.; J. Rapalje, Esq.

John B. Crosby, Esq., attended as a delegate from Livingston Agricultural Society, New York.

The Agriculturist.

TORONTO, OCTOBER, 1852.

HON. M. CAMERON'S BILL—ENCOURAGEMENT OF AGRICULTURE.

One of the worst consequences of that violent party spirit heretofore prevalent in Canada, is the determined hostility which is shown by the opposition to every prominent measure of the dominant party, wholly irrespective of its intrinsic merits. In most cases this hostility has no other effect than to fan the flame of party zeal and delay the public business. Under our system of Government the ascendant party must be strong enough to carry its measures in spite of the opposition, or it must give up the reins. And so far from modifying or improving the measures of the ruling party, a reckless opposition will generally prevent improvement even in cases where it would obviously be desirable. To give way to the suggestions of such an opposition might imply weakness, and would certainly be held up as proof of it by an unscrupulous press. A Government will therefore generally stick to its measures as introduced, defective though they be, rather than give way to an amendment proposed by the opposition which will be trumpeted forth as a defeat. An opposition of this kind is therefore worse than useless. It never prevents party

measures from being carried and it never improves them.

But now and then a measure comes before Parliament which requires for its successful working the assent and co-operation of all parties. In other cases when the law is placed on the Statute book the opposition ceases, and its effects are seen only in those imperfections which might otherwise have been remedied. In regard to those measures which from their nature and operation we may designate non-party, the effects of a factious, unreasoning opposition, are felt long after they have become law. The partizans of the opposition think they must follow the example of their leaders of the Legislature and the press, and what was begun, to hinder and embarrass a Ministry is continued when that object can no longer be attained, to the great injury and embarrassment of the country.

We have long been of opinion that Government could do much more than it has yet done to promote the prosperity of this country, by a judicious application of the means at its command for developing and making known, at home and abroad, the great natural resources of the soil.—It is no part of our creed that government should teach the people mathematics or languages, engineering or belle-lettres; that it should point out to them the best mode of constructing a steam engine, or preparing a summer-fallow, or breeding stock, or remedying the potato rot. But Government may provide for the establishment and maintenance of schools and colleges; it may secure to the inventor the just rewards of his labor and ingenuity; it may encourage improvement in agriculture by aiding in the formation of Societies and Associations, and contributing a portion of the funds to be offered as premiums to those who, by the discovery of new processes, or a more skillful combination of old ones, have extracted from the soil its best productions, and who thus show how the farmer's profits may be increased, and the prosperity of all classes promoted. Government may provide the machinery and means for collecting those facts which show the material progress of the country, and which, when presented in an authentic shape, will prove invaluable as a guide for the legislator, the merchant, the agriculturist, and the laborer within the province, as well as the emigrant without. It may do all this and much more without any abuse of its functions, and the result will be a more rapid advancement to wealth and greatness. Population will increase by immigration; capital will flow into the country more freely; the forest will melt away before advancing settlers; manufactories will spring up and live, because the market for their fabrics will be enlarged; the productions of the farm will be multiplied and rendered more profitable through the stimulus of a competition prompted by the noble as well as the sordid feelings, and through the improved implements, stock, and new and more production varieties of seeds, grain, roots, &c., which will be introduced, and speedily diffused throughout the country by means of Societies, Boards, Exhibitions, &c., &c. We do not mean to argue that the country would not advance in

these departments of industry were government to withdraw its direct aid, and leave to the spontaneous action of the people, and to individual effort, the introduction of improvements and the collection and diffusion of information. But it would be at a slow rate; ten years would be consumed in reaching the point which might be reached in one. The introduction and cultivation of a single vegetable, has, in several instances, revolutionized the agriculture of a whole country.—

Who can calculate the value which turnip husbandry alone has added to the annual productions of the British Isles? What an immense improvement has been effected in this country by the importations of Leicester and South Down Sheep, and two or three new breeds of Hogs—all within a few years? Look at the new varieties of Wheat that have been introduced, and by means of which, farmers in some parts of the country are producing good crops, who, a few years ago, could not grow their bread. Let us suppose that by means of such new varieties and by ascertaining the soil to which they are severally best adapted, the average produce of the country is increased two bushels an acre, what an immense benefit would this confer? We believe it can be shown that the average produce per acre has been increased this much already by means of improved varieties of seed, and as our average does not exceed fifteen bushels to the acre, it would not be very difficult to increase it to seventeen. Last year we exported (in wheat and flour) over three and a half millions of bushels, worth £842,620. An increase of two bushels an acre could all be exported, and would be nearly a seventh, say an eighth of the whole amount grown. Suppose that we consume no more than we export, the quantity thus added would be worth over £200,000 annually. This is only one item. But if we attempt to calculate the amount which can be added to the profits of the farm by the improvement of all its productions, and by labor saving machines, which are capable of indefinite increase, we shall be amazed at the result. The question then is, whether the same means which have already produced the most cheering results wherever they have been applied, shall be made available by the Government and people of this country acting together harmoniously and for the common good, or whether the blind and reckless spirit of faction shall obstruct the measures and frustrate the objects of those who are seeking to promote our best interests.

The following remarks on the subject of Government aid to Agricultural Societies and the new measure proposed by Hon. M. Cameron, are from the *North American*, and are copied for the information of our readers:—

We subjoin an outline of the Bill introduced by Mr. Cameron for completing the machinery by which the efforts of the friends of Agriculture, and the government aid to societies, &c., may be productive of more useful and permanent results. About £10,000 have been expended annually in Upper and Lower Canada for some years back in aid of societies and associations for the improvement of Agriculture. Although

much good has been effected through this means, yet abuses have in several instances prevailed, and for want of a systematic, legal, and responsible organization, the *results* of this expenditure have not been what they *ought* to have been, nor has the Legislature or the public at large had the means of ascertaining, with any approach to certainty, what these results really were; whether they were worth the cost, or could be rendered more beneficial. The object of the present measure is to organize a complete system from a responsible head in the Executive Government, down to a township society. The great advantage of such an amendment and consolidation of the present imperfect laws, no man of any party, who understands the subject, can deny.

The *first* clause of the new Bill repeals several acts, but continues all Societies and Boards lawfully organized until they come under the operation of the new law.

Sections 2, 3, 4, 5, 6, 7, and 8 provide for the establishment of a Bureau of Agriculture to be attached to one of the Departments, and this has been the subject of much misrepresentation and partizan abuse. We shall give the clauses as they stand in the Bill:

II. It shall be lawful for the Governor in Council to establish and organize a Bureau of Agriculture, which shall be attached to one of the Public Departments, and the Head of such Department shall be charged with the direction of the said Bureau and shall in respect thereof be known as the Minister of Agriculture.

III. The said Minister of Agriculture shall not as such be entitled to any additional salary, but he may appoint a clerk or clerks with such salary or salaries respectively, as the Governor in Council shall order.

IV. The said minister shall be *ex officio* President of all Boards of Agriculture which now are or hereafter may be established in this Province, and it shall be lawful for the Governor in Council to appoint to each Board a Vice-President thereof.

V. The said minister shall also receive all applications drawings, descriptions, specifications and models, for or relating to patents for inventions in this Province, and shall keep the records thereof; and all acts now in force relating to patents for inventions and which direct any thing to be done by or through the Provincial Secretary, shall be held to have directed the same to be done by or through the said minister.

VI. The said Minister shall also be a Member of the Board of Registration and Statistics, in the place of the Inspector General and shall be the Chairman thereof, and shall under the general direction of the said Board, have charge of the Census and other Statistical Returns.

VII. It shall be the duty of the said minister to institute inquiries and collect useful facts and Statistics relating to the Agricultural interests of the Province, and to adopt measures for disseminating or publishing the same in such manner and form as he may find best adapted to promote improvement within the Province, and to encourage immigration from other countries; and he shall annually prepare and submit to Parliament a succinct Report of his proceedings.

VIII. All Boards of Agriculture, Agricultural Societies, Associations, Municipal Councils, Colleges, Universities, Mechanics' Institutes, Public Institutions, and Public Officers in this Province, shall promptly answer official communications from the said Bureau of Agriculture, and shall make diligent efforts to supply correct information on all questions submitted to them respectively; and all public bodies, Institutions or Officers, neglecting for an unreasonable time to answer the official communications aforesaid, shall be liable to have their privileges and functions suspended during the pleasure of the Governor in Council.

It will at once be seen by the above provisions,

that very important duties are cast upon that member of the Government to whose Department the Bureau is to be attached, and for discharging which he is to have *no additional pay*, all the falsehoods of the opposition Press to the contrary notwithstanding.

1st. He is to direct the operations of the new sub-department, which may either be on a large or small scale, as may be found advisable, and as Parliament may be willing to sustain.

2nd. He is to be *ex-officio* President of the Boards of Agriculture in each section of the Province, the Government appointing to each Board one member, who will in the absence of the Minister represent him at its meetings, and act as Vice-President. The Bill provides for the election of these Boards by the Agricultural Societies. This mode is adopted to secure that practical knowledge and popular sympathy which a direct nomination by the Government would not be so likely to elicit. But as these Boards will be entrusted with the disbursement of public money, for which the Minister of Agriculture is responsible to Parliament, he is placed at the head of the Board. By a subsequent provision of the Bill, no sum derived through the Bureau can be appropriated without the assent of the Minister or his representative. Thus so far as expenditure is concerned, a direct connection is established between the Boards of Agriculture and the Government.

3rd. He is to have charge of the Patent office, a most important duty. At present we cannot be said to have a Patent office at all. Models, Drawings, &c., &c., relating to inventions will hereafter be preserved, and every thing relating to Patents arranged upon a similar plan to that adopted at Washington.

4th. The collection of statistics is at present under very inefficient management, from the fact that it is the special duty of no single member of the Government. This will hereafter form a part of the Bureau, and will be made to embrace as far as possible the Agricultural objects of the new office.

5th. He is entrusted generally with the collection of useful information bearing on the industrial interests of the country, and is to use it in such manner as may be deemed best to develop our resources and promote Immigration of a desirable kind. A wide field is here open to the Minister of Agriculture, and to aid him in his labour, all public institutions and public officers are required to supply such information as they possess. This, in addition to the Boards of Agriculture, with which he is directly connected and which again are directly connected with all Agricultural Societies, and in addition also to the general Census returns, will enable him to collect and digest in the most authentic form, all facts which will show to ourselves and to the world, the actual resources which Canada possesses, and the progress she is making.

The 9th, 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, and 19th, clauses of the Bill relate to the organization of the Boards of Agriculture. A Board is to be established in Lower Canada similar to the Board now in existence in Upper Canada. The 1st Board in L. C. is to

be wholly appointed by Government, but after the first year one half the members vacate their seats every year and are to be elected by the Societies as in Upper Canada. The Presidents of the Agricultural Associations (an Association to be established in Lower Canada similar to ours) and all Professors of Agriculture in chartered colleges are made *ex-officio* members of the respective Boards. Their duties are described as follows:—

XVII. It shall be the duty of the said Boards to receive the Reports of Agricultural Societies, and before granting the certificates hereinafter mentioned, to see that they have complied with the law; to take measures, with the approbation of the minister of Agriculture, to procure and set in operation a model, illustrative or experimental farm or farms in their respective sections of the Province and in connection with any public school, college or University, or otherwise, and to manage and conduct the same, to collect and establish at Toronto and Montreal respectively, an agricultural museum and an agricultural and Horticultural Library: to take measures to obtain from other countries animals of new or improved breeds: new varieties of grain, seeds, vegetables and other agricultural productions; new or improved implements of husbandry and new machines which may appear adapted to facilitate agricultural operations, and to test the quality, value and usefulness of such animals, grain, seeds, vegetables or other productions, implements or machines, and generally to adopt every means in their power to promote improvement in the Agriculture of this Province, and the said Boards shall keep a record of their respective transactions, and shall from time to time publish in such manner and form as to secure the widest circulation among the Agricultural Societies and farmers generally, all such Reports, Essays, Lectures, and other useful information as the said Boards respectively may procure and adjudge suitable for publication.

It will, we think, be admitted that a *wide field* is also opened to them, to promote the best interests of the country. They are incorporated, and the members are allowed the "actual necessary expenses" of attending regular meetings, but no other pay. They are allowed to employ a paid Secretary. They are also the managing Directors, or "Council," of the Association, which is to hold an annual Exhibition like that which has just passed off with so much eclat in Toronto.—This part of their duties will occupy a large share of their attention, and if well done, will prove of immense value to the country. The benefit of the seven or eight Provincial Exhibitions which have been held in Upper Canada is worth all the money that has so far been expended for the encouragement of Agriculture.

The 20th, 21st, 22nd, 23rd, 24th, and 25th clauses, relate to the management of these Associations. The President and Vice Presidents (or any persons an Agricultural Society may appoint in the place of these officers); the Members of the Board of Agriculture, and all subscribers of five shillings form an Association for holding an annual Fair, or Exhibition, in each section of the Province. The Board, as we before remarked, being its active managers, entering into contracts &c., &c. Municipalities are authorized to grant aid to the Association. The remaining clauses of the Bill relate to the organization of Societies.

If this Bill becomes law and is worked out in the spirit in which it has been framed, we shall not be behind any country in the world in the facilities that will be afforded for the elevation of the Farmer's profession, and the development of the resources of the soil.

Poetry.

ONE STORY'S GOOD TILL ANOTHER IS TOLD.

There's a maxim that all should be willing to mind—
'Tis an old one—a kind one—and true as 'tis kind:
'Tis worthy of notice wherever you roam,
And no worse for the heart if remember'd at home!
If scandal or censure be raised 'gainst a friend,
Be the last to believe it—the first to defend!
Say to-morrow will come—and then Time will unfold
That "one story's good till another is told!"

A friend's like a ship, when with music and song
The tide of good-fortune still speeds him along;
But see him when tempest hath left him a wreck,
And any mean billow can batter his deck.
But give me the heart that true sympathy shows,
And clings to a messmate whatever wind blows;
And says—when aspersion, unanswered, grows bold—
Wait! "one story's good till another is told!"

C. W.

SYDNEY SMITH'S RECIPE FOR A WINTER SALAD.

Two large potatoes passed through kitchen sieve,
Unwonted softness to the salad give.
Of mordent mustard add a single spoon;
Distrust the condiment which bites so soon:
But deem it not, thou man of herbs, a fault
To add a double quantity of salt.
Three times the spoon with oil of Lucca crown,
And once with vinegar procured from town.
True flavor needs it, and your poet begs
The pounded yellow of two well-boiled eggs.
Let onion atoms lurk within the bowl,
And, scarce suspected, animate the whole;
And lastly, on the flavored compound toss
A magic teaspoon of anchovy sauce.
Then, though green turtle fail, though venison's tough,
And ham and turkey are not boiled enough,
Serenely full the epicure may say—
Fate cannot harm me—I have dined to-day!

WILD ANIMALS IN CONFINEMENT.—Were it not that custom reconciles us to everything, a Christian community would surely be shocked by the report, and still more by the sight, of the sacrifice of innocent and helpless creatures—pigeons and rabbits, for instance—to the horrible instincts of snakes, who will not eat anything but what is alive. An account was recently given of a night-visit to the place of confinement of these disgusting reptiles, in which the evident horror of their intended victims, confined in the same cages, was distinctly mentioned. The gratification of mere curiosity does not justify the infliction of such torture on the lower animals. Surely the sight of a stuffed boa-constrictor ought to content a reasonable curiosity. Imagine what would be felt if a child were subjected to such a fate, or what could be answered if the present victims could tell their agonies as well as feel them! Byron speaks of the barbarians who, in the wantonness of power, were 'butchered to make a Roman holiday;' and verily the horrors exhibited in our public gardens and menageries are something akin to the fights of gladiators: it is the infliction of misery for mere sport. With reference also to lions, tigers, and other ferocious animals kept in cages—if retained at all, the space allotted them ought to be much larger than it is, so as to allow them full room for healthful exercise. At present, they must be wretched; and considering also the quantity of food they consume, which might be converted to useful purposes—though this is taking a lower view of the matter—it is at least desirable that the number should be much smaller, and a much greater space allowed them to exhibit their natural vivacity. These remarks do not, of course, apply to fowls and other animals who are allowed a sufficient share of liberty to exist in comfort, and to whom it is not necessary to sacrifice the existence of other creatures.—*Ogden's Friendly Observer.* We en-

tirely agree in reprobating the practice of placing live rabbits and other creatures within the cages of boa-constrictors. A recollection of a poor little rabbit cowering in the corner of one of these cages, as if aware of its approaching fate, has haunted us for years. No purpose of science can be answered by this constantly recurring barbarity. Zoological Societies should be careful not to run any risk of counteracting by such spectacles the elevated feelings they are so well calculated to foster.—*Ed. Chamber's Edinburgh Journal.*

LOVE OF FLOWERS.—In all countries women love flowers; in all countries they form nosegays of them; but it is only in the bosom of plenty that they conceive the idea of embellishing their dwellings with them. The cultivation of flowers among the peasantry, indicates a revolution in all their feelings. It is a delicate pleasure, which makes its way through coarse organs; it is a creature whose eyes are opened; it is the sense of the beautiful, a faculty of the soul which is awakened; colors, forms, odors, are perceived for the first time, and these charming objects have at last spectators. Those who have travelled in the country can testify that a rose tree under the window, a honeysuckle around the door of a cottage is a good omen to a weary traveller. The hand that cultivates flowers is not closed against the supplications of the poor, nor against the wants of the stranger. Flowers may be called the alphabet of angels, wherewith they write on hills and plains mysterious truths.

Female Education.

From the Canadian Family Herald.

Having said so much, as to the mode of Education, we would for a few moments turn to the kind of instruction to be given, and the parties who most particularly require that instruction. As regards the books to be used, and the way in which their contents may be best acquired, we need not here speak, as these, in a great measure, are dependent upon local and incidental circumstances. One teacher may, from his earliest years, have been accustomed to one mode of communicating instruction, which, if pursued by another, not so thoroughly initiated into that mode, might appear ill-fitted to produce the desired end. One may have a preference for one kind of text-book, because its elementary principles are more clearly defined, and the connecting links between the various principles enunciated, more easily discernible, than in the text-book of a fellow-teacher; all of which, instead of being cause for a diversity of feeling, only ratify the remark—"that custom renders all things easy." If the teacher is an adept at his profession, the peculiar kind of text-book does not so much signify, in so far as the mere elementary part of education is concerned. Leaving that department of the school-room, then, we start with this broad principle, that in whatever light we view the subject, in its varied ramifications, we must consider the mother as the great educator, and according as the faculties of her mind have been developed, and have received a proper bent, may we estimate the influence she will exert not only in her own domestic sphere, but upon society. How desirable that she be fitted for the high responsibility in which she is placed;—that a thorough knowledge of her own physical organization should guide all her movements in that important relation in which she now stands to society. From the mother's breast the healthful or impure stream is drawn which nourishes or vitiates infant life. In the mother's countenance the child has its first study,

and every varied form which that countenance assumes excites new feelings or emotions in the infant mind. If it wear a pleasant smile, the first springs of affection will warm the infant heart. If it beams with intelligence, it will inspire the sweetest confidence and veneration. But, if that countenance is mantled with a frown;—if it is an index to the bitterness of resentment which may rankle in the soul, then will the corresponding passions be speedily excited in the pliant heart. We mistake very much by supposing that it is the purpose of education to implant those varied faculties in the mind which it sometimes very successfully promotes. It is not so, they are all there by nature in the mind, of the infant, as in that of the full grown man, waiting to be developed and to receive their proper bent that they may all operate to the glory of their Creator. In the development of these the mother plays the most important part. By her daily and persevering efforts the infant mind is expanded and strengthened, and flows out in earnestness and devotion towards all that is good and noble, pure and ingenuous; and to these intelligent, well-directed efforts, may be traced more of that mental greatness which has adorned mankind, than to any superior natural conformation. Such then is the work which necessarily devolves upon the mother, and it unperformed by her, the deficiency can be but ill-supplied by another. How important then to the interests of Society—to moral and mental greatness, to social comfort, domestic enjoyment, and to the realization of a happy home—that mothers be prepared for so ennobling a duty.—Here then the question suggests itself—How is this unspeakable blessing to be secured? It is evident, that to its thorough attainment it must be begun at the cradle; and here the matter becomes complex and involved, the more closely you examine it, for the one part so reacts upon the other that it is not easy to know at what stage of the process the educator can step in. If the work, to be successful, must begin at the first dawning of the infant mind, the prerogative necessarily rests with the mother; but then, if the mother has not in her earlier years been sufficiently fitted and qualified for her high vocation, how rests the matter. Oh! then there is a blank which no extraneous application can adequately supply. Thus we see that to ensure domestic comfort we must have educated mothers, and to make sure that the mothers are thoroughly trained we must educate the girls. The heart of the girls must be purified from all unhappy and ungenerous emotions;—the understanding cultivated to apprehend wherein lies the chief good;—the mind enlightened so as to discern and eschew the tendency to evil which is incident to human nature,—and so moulded by the pure and healthful moral precepts of christianity, as to be led to pursue virtue for virtue's sake. Not only so, but there must be an abrogation of much that is now mixed up with the prevalent ideas of female education. We must get rid of a great amount of that frippery which is termed accomplishment, so that something having a substantial bearing upon the realities of life may be substituted in its stead. Although the higher department of intellectual education may safely devolve upon another, yet the first and most lasting principles of the moral and physical departments belong exclusively to the mother. The superintendence of these is her special sphere, and not only must she impress upon her tender charge that the wayward heart is the seat of the affections; but, that it is the guiding principle in the physical system; that from it is constantly rushing with incredible force that radiant stream which sends energy and sensation to the remotest parts of the human frame,—and that the daily waste which takes place in that stream must be daily supplied to the system

by healthful nourishment. Here, however, we must for the present pause.

BOTTOMLESS LIFE-BOAT.

The Portsmouth papers make mention of a model life-boat by Mr. Holbrook, which is at present being exhibited in that place, and which they state is so constructed that every part of it can be made use of to save life in case of fire or of shipwreck. The boat is made of mahogany, 50 inches long, to represent one about 25 feet long; it is without a bottom, as a safeguard against capsizing; there is a rope netting to prevent any one from falling through, and also on the outside for others to cling to. After a storm is over, a waterproof bottom can be drawn over, and also a covering of the same kind placed over the head and other parts of the boat, and thus keep it warm and dry. The boat can be made in various parts, separately, or in a number of compartments, filled with barrels, and so placed as to give great strength to the sides. The stretchers, thwarts, masts, yards, flag-staff, &c., are all separate life-preservers, if thrown out, or the boat dashed to pieces; in fact, no part can sink. There are tanks on board, intended for food, clothing, compass, rockets, and many other things necessary; and even the mail bags cannot be lost if placed in these receptacles; and coffee can be boiled in a few minutes at the head of the boat, by a very ingeniously constructed kettle, with only a few chips; whilst the man at the helm can have a fire close to him. There are also two floats that will hold up in water about 100 persons in case the ship is sinking or on fire.

M. Liebig, the celebrated chemist, has just been appointed Public Professor of the University of Munich, and director of the chemical laboratory. The salary has been fixed at 16,000 francs.

GREAT SALE OF SUPERIOR THOROUGH BRED SHORT-HORN CATTLE.

The Subscriber will offer for sale, his entire herd of choice short horns, comprising 50 head, young and old at Public Auction, on Wednesday, the 13th of October, 1852, at One o'clock, P. M. at his Farm 2½ miles from the City of Troy; reserving to himself one bid on five Cows and Heifers and one Bull, say six head in all, and these to be pointed out previous to the commencement of the sale; this bid will be made public when the six animals are brought to the stand for sale. Should any gentleman advance on the single bid made by the proprietor, the highest bidder will be entitled to the animal. It is proper to say, the severe drought in this vicinity reducing the hay crop one half, has decided the proprietor to make this sale at the time named, instead of next June, which he had purposed to do.

The well established reputation of this herd in this Union, and in Canada, and the splendid herd it has measurably sprung from viz; the famed herd of that eminent English breeder, the late Thomas Bates, Esq., renders it hardly necessary to comment upon its superior merits. It may not however be inappropriate to remark, that the establishment of this herd was commenced in 1838, and that the most careful attention has since been paid to its breeding, and it now contains mostly all the reserved stock of two former public sales. Since 1840, the proprietor has imported from the late Mr. Bates, and his friends and late tenants the Messrs. Bells, 7 head of short horns; and besides these he has now on the passage across the Atlantic, shipped 21st. June, on board the Packet Ship Kossuth, Capt. J. B. Bell, a superior yearling roan Bull, having many crosses of the famed Duchess Bulls of Mr. Bates. Including this latter animal and

the two beautiful red roan 3 year old Heifers, which came out from England last September, "Yarm Lass" and "Yorkshire Countess" and the beautiful Heifer Calf of the latter animal, got in England by the Duchess Bull 5th Duke of York, there will be 14 head of this imported stock, and its immediate descendants. There have been sold from this herd but three Heifers from these importations, and these Cows were sold at \$300 each. All young Bulls bred from these Cows, except those now offered for sale, have also been sold at private sale, at \$300 each, most of them while quite young.

Besides these 14 head of high bred animals, the noble premium Cow, Esterville, 3rd, bred by E. P. Prentice, Esq., of Albany, and her equally fine 2 year old, red and white Heifer bred by me, got by the Bates Bull Meteor, and three of the famed milking Willey tribe, the same tribe of Cows as the Heifer Ruby, sold by me to Mr. S. P. Chapman of Madison Co. and which Cow was awarded the first premium by the New York State Agricultural Society, for producing the largest quantity of butter in 10 days in June, and 10 days in August, on grass pasture only, being a fraction over 40 lb. in those 20 days. There are other valuable tribes in the herd, as the printed catalogue will show.

The Catalogue will be ready for distribution about the 1st of August, and will exhibit richness of pedigrees rarely to be met with, showing the descent of the most of the animals, from the best animals on record in the English herd book. Having received an invitation from H. Strafford last winter to forward a list of the pedigrees of my herd to be inserted in the forthcoming volumes of the English herd book of which Mr. Strafford is now the Editor, several pedigrees were sent to him of the animals here offered for sale, and will appear in said book.

A credit of 9 months will be given on all sums up to \$300, and 9 and 18 months on all sums over \$300, for approved paper, with interest payable at some Bank in this State.

GEO. VAIL.

Troy, New York, July 9, 1852.

Letters



Patent.

TIME & LABOR SAVED ARE MONEY EARNED!

B. P. PAIGE & Co., SOLE PATENTEES.

THE Subscribers having had secured to themselves the exclusive right to Manufacture and vend to others to use, in the Territory of Upper and Lower Canada,

SEVERANCE'S PATENT IMPROVED HORSE-POWER AND THRASHING MACHINE,

One of the most Valuable Machines ever invented for saving labor and time, respectfully inform the Public that having greatly enlarged their Extensive Establishment on Wellington Street, now extending through from Prince to George Street, which will give them ample room and accommodations, they trust, to enable them hereafter to supply the whole Farming Community of Canada, with a machine that will thrash and clean more grain in a day with less expense and more neatness than any other Thrashing Machine in use, and requiring but Two Horses.

We beg leave to say to our Customers & Friends, that we are again prepared to furnish those in want of Thrashing Machines, with an article superior even to those heretofore manufactured by us. Our long experience in making, and the very liberal patronage we have enjoyed in the sale of our Machines, has, together with a constant determination to produce an article that will never fail to excel all others, caused us to watch carefully all the improvements that could be made from time to time, until now we feel confident in saying, that for durability, neatness of Work and amount of it they can do, our Thrashing Machines are unequalled by any in use, and while the grain is thrashed clean, and none of it broken or wasted, it is at the same time perfectly cleaned, fit for the mill, or any market.

One of the above named Machines, will give a man, with proper diligence and attention, an income of from five to eight hundred dollars a year, as appears by the statements of a great number of gentlemen, who thrashed last season, and have kindly given us permission to refer customers to them for information in regard to the operation of our Machines.

Whereas, Letters Patent were obtained, bearing date March 5, 1849, on said Machine, the public are cautioned against purchasing, using, and manufacturing any imitation article, as all infringements will be dealt with according to the law of the land. All the genuine Machines will be accompanied by a Deed, signed by B. P. PAIGE, the owner of the right, giving the purchaser the right to use or transfer the same.

All orders addressed to us, or to **WILLIAM JOHN-SON**, our Agent, will be promptly attended to. Machines shipped to any Port in Upper or Lower Canada, and every one warranted to be as good as recommended.

B. P. PAIGE & Co.

The Agents for the sale of the above Machine in Canada West are as follows:—Workman, Woodside & Co., Toronto; Joswell Wilson, Ancaster; Horatio A. Wilson, Westminster; M. Anderson & Co. London; Mr. Samuel Young, Asphodel. 66s-6m

Montreal, August 1822.

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TERMS.

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N. B.—No advertisements inserted excepting those having an especial reference to agriculture.—Matters, however, that possess a general interest to agriculturists, will receive an Editorial Notice upon a personal or written application.

THE
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AND
Transactions
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BOARD OF AGRICULTURE OF UPPER CANADA.

VOL. V.

TORONTO, NOVEMBER, 1852.

NO. 11.

BUREAU OF AGRICULTURE.

[From the Quebec Gazette, October 6.]

Last night the second reading of Mr. Cameron's bill to provide for the establishment of a Bureau of Agriculture, came off. As was expected, from the tone of certain of the Upper Canada journals, considerable opposition was evinced by some of the members, though we were happy to find that the agriculturalists of the House, the men who are most interested in the matter, and who are best able to judge as to the requirements of that portion of the community, were unanimous in their support of the measure. The class of opposition against this bill, the style of argument made use of by its opponents was certainly below what we should have expected, as we had been led to understand that several members had come down to the House, brim full of reasons, and only wanting an opportunity to completely annihilate the government on the subject. One of the main arguments adduced was, that the agriculturalists of Upper Canada were opposed to the Bureau, that the present arrangement for the encouragement of agriculture was ample for the requirements of the people, and that any other arrangement would certainly prove abortive. — These reasons, if based on anything more than mere assertion, must have had great weight with the House, but our readers will perhaps be astonished to learn that the proof adduced in support of the statements was, that at the meeting lately held in St. Lawrence Hall, Toronto, during the Provincial Exhibition in that city, the hon. Malcolm Cameron, the present head of the Bureau, was greeted by certain persons with groanings and disgraceful names on entering the Hall, where it was announced that he should give explanations as to the views and intentions of the government on the subject of the encouragement of agriculture, and the establishment of a Bureau. The reception of Mr. Cameron at that meeting was, strange to say, (perhaps not, for of late we are prepared to hear any thing from that journal,) by the *Globe* proclaimed as evidence that the farmers of Upper Canada were opposed to the establishment of this office. The argument, however, had not the shadow of truth about it. A larger and more enthusiastic meeting was never held in the City of Toronto, and never was a

speaker more warmly greeted, than was Mr. Cameron. It is true that one person, a painter by the name of Orr, who, we believe, was rather more than "three sheets in the wind," did attempt to get up a noise, but the attempt was a miserable failure, and his single voice only, was heard articulating sounds, which few persons, if any, could understand. But even if the meeting had been quite as noisy as the *Globe* represented it to be, even if Mr. Cameron had been greeted by hisses and groans, that would be no proof that the people of Upper Canada are opposed to the Bureau over which that gentleman presides. — The editor of that paper will probably remember the Clergy Reserves meetings held in the same room in 1851, and the noise and tumult there got up by a few persons "friends of religion, to prevent an honest expression of opinion on the subject." He will probably recollect the evening when he and others were obliged to give up the platform to a band of rowdies, calling themselves gentlemen, when even age and the sacred office of the ministry was no protection against the low vulgar abuse of those said rowdies, and when a meeting called expressly for the purpose of eliciting an opinion in favor of the secularization of the Reserves, ended in mock resolutions in favor of their present settlement. Now we would ask the *Globe*, or the member for Kent, what would they have said, if that demonstration had been taken as an expression of opinion on the part of Upper Canada against the secularization of the Clergy Reserves? And yet, would it not have been quite as just as it is now, to proclaim the demonstration lately made of low, abusive, and vulgar language at the meeting in Toronto, as an expression of the farmers of Upper Canada against the Bureau of Agriculture? It is disgraceful then, to libel the people of Toronto, or the farmers who were at that meeting, because one single individual did not know how to behave himself. We believe, and we think that we are sustained in that belief by the state of the case, that the Bureau of Agriculture had nothing to do with the noise at the Toronto meeting, but that to Mr. Cameron's well-known opinions on political topics, to a connection with a party known to be in favour of progressive reform principles, and mainly to his determined hostility to Church endowment, and to these alone to be attributed the conduct of the individual who endeavoured to

abuse that gentleman, and who no doubt had been thoroughly trained by his old masters, as to the particular expressions to make use of.

But, moreover, unlike the Clergy Reserve meeting to which we alluded, and at which the feeling was so strong against Messrs. Brown, Burns & Co., that no order could be restored, Mr. Cameron was listened to with marked attention, and as we have said, with enthusiasm; the reason being, doubtless, that the farmers at the meeting were so large a majority, that Mr. Orr, and any friends who might have desired to encourage him, did not dare to interrupt while the hon. gentleman was speaking. After a great flourish of trumpets by Mr. Smith, about the farmers in his county, who had but one opinion in the matter—and that opposed to the Bureau—and a feeble attempt to make out that Ministers had read their own bill, and therefore knew nothing of its provisions, Mr. Street obtained the floor, and in his usual lucid style, so cornered the hon. lawyer from Frontenac, that he had not a word to say for himself. Mr. Street is himself an agriculturist, the President of the Board of Agriculture in Upper Canada, and decidedly the most prominent and influential man among the agriculturists of Upper Canada.—Such a person, we should judge, is fully competent to form an opinion as to the wishes of the agriculturists in this matter; and he stated distinctly that so far as the views of the different Agricultural Societies—so far as the opinion of the *Agriculturist*, the only legitimate organ of the farmers in Upper Canada, could be taken as expressive of the wishes of the farmers—there was not a single dissentient voice from the principles of the Bill before the House. Mr. Street taxed hon. gentlemen with opposing this bill, merely because it emanated from the Ministry, and challenged them to produce a single tangible reason why it should not pass; whereupon Mr. Smith said, that according to the provisions of the bill, the amount to be paid to local agricultural associations was reduced from £17 10s. to £10. Ah, said Mr. Street, that shews the hon. gentleman knows nothing about it. And indeed it did shew it pretty clearly; for according to the system at present in force, township associations are obliged to deposit £17 10s. before they can attach themselves to the general board, and the new bill proposes to reduce that deposit to £10, thus making it more easy for township boards to become incorporated with the general board. The argument, that the farmers of Upper Canada were opposed to the establishment of the Bureau, having been completely set aside by the statements of Mr. Street, another argument had to be hunted up; and it fell to the lot of Mr. Robinson to come out with one of the greatest absurdities of the evening. He asserted that the agriculturists had but one view of the case presented to them, while, at the same time, he read a host of extracts from Upper Canada papers, papers that are read by nearly every farmer in Upper Canada, in which the Bureau is denounced with the most determined hostility. Mr. Brown followed in the same strain. Oh, said he, if both sides of the question were fairly laid before the farmers of Upper Canada, the result might have been different. That gen-

tleman paid himself a very poor compliment by the assertion; for if the farmers have not had reasons laid before them why the Bureau should not be established, it has not been the fault of the editor of the *Toronto Globe*, a paper which boasts of being read by 15,000 farmers. If but one side of the question was represented to the farmers, that side was the one opposed to the establishment of the Bureau. It is certainly amusing to hear lawyers and editors get up in the House and declare that the agriculturists don't want a Bureau of Agriculture, while the farmers themselves in the House, and, if we may judge from their expressions, the farmers out of the House, declared themselves, not only in favour of the new Office, but anxious for its establishment. *Ne sutor ultra crepidam*. The farmers do not require to be told by the legal gentlemen of the House what are their requirements. We fully concur with Mr. Street in the opinion that the same reasons which induced certain persons to disturb the meeting at Toronto, is the only motive which induces hon. members in the House to oppose this bill—that is, because it emanates from the Government.

ANALYSIS OF THE EXHIBITION.

The following analysis of the Provincial Exhibition, recently held in Toronto, has been carefully copied from the Judge's Books, analysed and clasified by E. W. Thompson, Esq., who kindly acted as one of the Committee. It presents a very interesting table for future references.

Statement relative to the late Provincial Exhibition, showing the amount of competition brought out by the liberal prizes offered, the number of entries made, the number and class of prizes awarded, and the amount of the same, under each heading, the total in each class, and the whole total in all the classes.—The Judges have not in all cases adhered strictly to the number of premiums laid down in the published prize list, but have in a few discretionary instances changed them slightly, making them fewer or more as the case may be. For the exact amount offered in each class of prizes under each heading, refer to the printed list published before the Fair.

The figures, 1, 2, 3, &c., in the column just to the left of the column of Pounds, denote the number and class of prizes awarded under each heading, whether first, second, third, &c., as the case may be, or all of them. Where no entries have been made it does not arise in all cases from the absence of the articles in the country, but rather from the accidental circumstance of the owners or producers not happening to offer them for competition, either through indifference or inattention. Where entries have been made, and no prize awarded, it has arisen, in some cases, from the want of merit in the articles, or in others from some objection on account of non-compliance with some rule of the Association, or in other cases, possibly, from oversight or being too late upon the ground, &c. The Diplomas awarded are not mentioned here, being given along with the names of the parties in

the published list of prizes. In estimating the whole number of animals or articles entered, it is necessary to observe that a number of the entries, as in sheep, poultry, and various manufactures, are each for two or several specimens of the article exhibited.

ARTICLES.	No. of Entries.	Prizes Awarded.	Amount.	
CLASS A.—DURHAMS.				
Durham Bull - - -	5	1,2,3,4	£	s. d.
Do. do. 3 years old -	5	1,2,3,4	14	0 0
Do. do. 2 years old -	12	1,2,3,4	12	0 0
Do. do. 1 year old -	5	1,2,3,4	10	5 0
Do. do. Calf of 1852 -	8	1,2,3,4	7	15 0
Do. Cow - - -	19	1,2,3,4	5	15 0
Do. do. 3 years old -	7	1 & 2	11	0 0
Do. Heifer 2 years old	9	1,2,3,4	6	10 0
Do. do. 1 year old -	5	1,2,3	6	15 0
Do. do. Calf of 1852	6	1,2,3,4	5	0 1
			3	5 0
Total Durhams - - -	81	No. 37	82	5 0
CLASS B.—DEVONS.				
Bull - - - - -	4	1,2,3	13	0 0
Do. 2 years old - - -	1	1	4	10 0
Do. 1 year old - - -	1	1	3	10 0
Do. Calf of 1852 - - -	4	1,2,3	5	5 0
Cow - - - - -	7	1,2,3	8	0 0
Heifer 2 years old - - -	5	1,2,3	6	0 0
Do. 1 year old - - -	4	1,2,3	5	0 0
Do. Calf of 1852 - - -	4	1,2,3	3	0 0
Total Devons - - -	30	20	46	5 0
CLASS C.—HEREFORDS.				
Bull - - - - -	1	1	6	10 0
Do. 1 year old - - -	2	1,2	5	15 0
Cow - - - - -	2	1,2	8	0 0
Total Herefords - - -	5	5	20	5 0
CLASS D.—AYRSHIRES.				
Bull - - - - -	4	1,2,3	13	0 0
Do. 2 years old - - -	2	1	4	10 0
Do. 1 year old - - -	3	1,2	5	15 0
Do. Calf of 1852 - - -	5	1,2,3	5	5 0
Cow - - - - -	4	1,2,3	10	0 0
Heifer 2 years old - - -	2	1,2	5	0 0
Do. 1 year old - - -	2	1,2	4	0 0
Do. Calf of 1852 - - -	1	1	1	10 0
Total Ayrshires - - -	21	17	49	0 0
CLASS E. 1.—GRADES.				
Cow - - - - -	11	1,2,3	8	0 0
Do. 3 years old - - -	5	1,2,3	6	15 0
Heifer 2 years old - - -	3	1,2	5	0 0
Do. 1 year old - - -	7	1,2,3	5	0 0
Do. Calf of 1852 - - -	7	1,2,3	2	15 0
Total Grades - - -	33	14	27	10 0
CLASS E. 2.—FAT CATTLE.				
Ox or Steer - - - -	7	1,2,3	6	0 0
Cow or Heifer - - -	7	1,2,3	6	0 0
Yoke of Working Oxen -	5	1,2,3	6	0 0
Ox or Steer for Butcher's Prize	2	1,2	15	0 0
Total Fat Cattle and Oxen	21	11	33	0 0

CLASS F.—HORSES.				
Stallion for President's Prize	37	1	30	0 0
Do. for Agricultural purposes	34	1,2,3	15	0 0
Do. Heavy Draught - -	15	1,2,3	15	0 0
Do. 3 years old - - -	19	1,2,3	9	0 0
Do. 2 years old - - -	17	1,2,3	6	0 0
Filly 3 years old - - -	12	1,2,3	7	10 0
Do. 2 years old - - -	15	1,2,3	6	0 0
Span matched Carriage Horses	20	1,2,3	8	0 0
Do. Draught Horses - -	8	1,2,3	8	0 0
Brood Mare and Foal - -	17	1,2,3	9	0 0
Saddle Horse - - - -	10	1,2,3	4	10 0
Total Horses, Class F -	212	31	118	0 0

CLASS G.—BLOOD HORSES.				
Thorough-bred Stallion -	5	1,2,3	15	0 0
Do. 3 years old - - -	6	1,2,3	9	0 0
Do. 3 years old Filly -	3	1,2	6	10 0
Do. 2 years old do. -	1	1	3	0 0
Do. Mare and Foal - -	1	1	5	0 0
Total Blood Horses - -	16	10	38	0 0

CLASS H.—SHEEP.				
<i>Leicesters.</i>				
Leicester Ram, two Shears or over	11	1,2,3	7	0 0
Do do Shearling - - -	9	1,2,4	4	15 0
Do do Lamb - - - -	29	1,2,3	3	10 0
Do 2 ewes 2 shear and over	8	1,2,3	8	10 0
Do 2 ewes shearling - -	7	1,2,3	6	0 0
Do 2 ewe lambs - - -	15	1,2,3	3	0 0
Total Leicesters - - -	79	18	32	15 0

<i>South Downs.</i>				
Ram, two Shears and over	10	1,2,3	7	0 0
Do Shearling - - - -	9	1,2,3	4	5 0
Do Lamb - - - - -	5	1,2,3	4	0 0
Two Ewes two shears or over	7	1,2,3	8	10 0
Do Shearling - - - -	4	1,2,3	6	0 0
Do Lambs - - - - -	4	1,2,3	3	0 0
Total South Downs - -	49	18	32	15 0

<i>Merinos and Saxons.</i>				
Ram two shear and over	11	1,2,3	7	0 0
Do Shearling - - - -	2	1,2	4	0 0
Do Lamb - - - - -	6	1,2,3	3	10 0
Two Ewes two shears and over	6	1,2,3	8	10 0
Do Shearling - - - -	2	1	3	0 0
Do Ewe Lambs - - - -	6	1,2,3	3	0 0
Total Merinos and Saxons	33	15	31	0 0

<i>Fat Sheep.</i>				
Two Wethers - - - -	10	1,2,3	6	0 0
Two Ewes - - - - -	8	1,2,3	6	0 0
Total Fat Sheep - - -	18	6	12	0 0

CLASS I.—PIGS.				
<i>Large Breed.</i>				
Boar, one year and over	9	1,2,3	6	0 0
Breeding Sow, one year and over	10	1,2,3	6	0 0
Boar of 1852 - - - -	3	1,2	3	10 0
Sow of 1852 - - - -	11	1,2,3	4	10 0
Total Pigs, Large Breed	33	11	20	0 0

<i>Small Breed.</i>				
Boar one year and over	3	1	3	0 0
Breeding Sow one year and over	7	1,2,3	6	0 0
Boar of 1852 - - - -	1	1	2	0 0
Sow of 1852 - - - -	4	1,2,3	4	10 0
Total Pigs, Small Breed	15	8	15	10 0

CLASS J.—POULTRY.

Pair Dorking Fowls	-	-	6 1,2	0 15 0
Pair Poland Fowls	-	-	7 1,2	0 15 0
Pair large breed Fowls	-	-	16 1,2,3	0 17 6
Pair Turkeys	-	-	5 1,2	0 15 0
Pair large Geese	-	-	10 1,2	0 15 0
Pair Muscovy Ducks	-	-	1 0,0	0 0 0
Pair Common Ducks	-	-	7 1,2	0 15 0
Pair Guinea Fowls	-	-	1 0,0	0 0 0
Lot of Poultry (for best)	-	-	4 1	0 10 0

Total Poultry - - - 57 14 £5 2 6

CLASS K.—AGRICULTURAL PRODUCTIONS.

25 bushels Fall Wheat	-	-	28 1,2,3	40 0 0
2 " do.	-	-	36 1,2,3	5 10 0
2 " Spring Wheat	-	-	27 1,2,3	5 10 0
2 " Barley	-	-	14 1,2,3	3 0 0
2 " Rye	-	-	6 1,2,3	3 0 0
2 " Oats	-	-	12 1,2,3	3 0 0
2 " Peas	-	-	17 1,2,3	3 0 0
2 " Marrowfat Peas	-	-	19 1,2,3	3 0 0
2 " Indian Corn (in ear)	-	-	8 1,2,3	3 0 0
1 " Timothy Seed	-	-	10 1,2,3	3 0 0
1 " Clover Seed	-	-	5 1,2,3	8 0 0
1 " Hemp Seed	-	-	3 1,2,3	2 5 0
1 " Flax Seed	-	-	10 1,2,3	3 0 0
20 lbs. Swede Turnip Seed	-	-	3 1,2	1 5 0
Bale of Hops	-	-	12 1,2,3	5 0 0
1 bushel Potatoes	-	-	48 1,2,3	1 10 0
1 " Swede Turnips	-	-	11 1,2,3	1 10 0
1 " White Globe Turnips	-	-	2 1,2	1 5 0
1 " Aberdeen Yellow Turnips	-	-	1 1	0 15 0
1 " Red Carrots	-	-	4 1,2,3	1 10 0
1 " White or Belgian Carrots	-	-	8 1,2,3	1 10 0
1 " Long Red Mangel Wurzel	-	-	11 1,2,3	1 10 0
1 " Y'low Globe do. Wurzel	-	-	8 1,2,3	1 10 0
12 roots Khol Rabi	-	-	6 1,2	0 15 0
1 bushel Sugar Beet	-	-	5 1,2,3	1 10 0
1 " Parsnips	-	-	3 1,2,3	1 10 0
4 Cattle Squash	-	-	6 1,2,3	1 10 0
Manufactured Tobacco	-	-	2 1	1 0 0
28 lbs. Broom Corn Brush	-	-	6 1,2,3	2 5 0
112 " Flax	-	-	3 1,2,3	11 0 0
112 " Hemp	-	-	2 1,2	6 10 0

Total Agricultural Productions 336 85 £123 10 0

CLASS L.—HORTICULTURAL PRODUCTS.

20 varieties Apples, named	-	-	18 1,2,3	1 10 0
12 Table Apples, named	-	-	53 1,2,3	1 2 6
12 Winter Apples, named	-	-	56 1,2,3	1 2 0
Variety of Pears, named [for best and greatest]	-	-	5 1,2,3	1 10 0
12 Table Pears, named	-	-	23 1,2,3	1 2 6
12 Winter Pears, named	-	-	18 1,2,3	1 2 6
12 Dessert Plums, named	-	-	35 1,2,3	1 2 6
12 Baking Plums, named	-	-	18 1,2,3	1 2 6
12 Hot-house Peaches	-	-	4 1,2,3	1 2 6
12 Open Air Peaches	-	-	26 1,2,3	1 2 6
Collection of Open Air Peaches	-	-	2 1,2	0 17 6
4 bunches Hot-house Grapes	-	-	5 1,2,3	1 2 6
4 " Open Air Black Grapes	-	-	5 1,2,3	1 2 6
4 " Open Air W'te Grapes	-	-	11 1,2,3	1 2 6
2 Pumpkins	-	-	10 1,2,3	1 2 6
4 Table Squashes	-	-	10 1,2,3	1 2 6
12 Tomatoes	-	-	18 1,2,3	1 2 6
4 heads Cauliflower	-	-	5 1,2,3	1 2 6
4 heads Summer Cabbage	-	-	3 1	0 10 0
4 heads Winter Cabbage	-	-	14 1,2,3	1 2 6
12 table Carrots	-	-	7 1,2,3	1 2 6
12 roots White Celery	-	-	7 1,2,3	1 2 6
12 roots Red Celery	-	-	6 1,2,3	1 2 6
Dozen Capsicums	-	-	7 1,2,3	1 2 6
Six Purple Egg Plants	-	-	4 1,2,3	1 2 6

12 Blood Beets	-	-	8 1,2,3	1 2 6
Peck White Onions	-	-	8 1,2,3	1 2 6
Peck Yellow Onions	-	-	8 1,2,3	1 2 6
Peck Red Onions	-	-	12 1,2,3	1 2 6
Half bushel White Table Turnips	-	-	3 1,2,3	1 2 6
Peck White Beans	-	-	10 1,2,3	1 2 6
Dozen Dahlias, named	-	-	3 1,2	0 17 6
Bouquet Cut Flowers	-	-	3 1,2	0 17 6
Collection Green House Plants	-	-	3 1,2,3	2 5 0
Collection Annuals, in bloom	-	-	4 1,2,3	1 2 6
Floral Ornament	-	-	3 1,2	1 15 0
"Canada Coffee," (or Chick Pea)	-	-	3 1,2,3	1 0 0
Water Melon	-	-	6 1,2,3	0 17 6
Musk Melon	-	-	18 1,2,3	1 2 6
Collection Dahlias	-	-	2 1	1 0 0
Variety Green House Plants	-	-	1 0	0 0 0
Variety Vegetables	-	-	4 1,2,3	1 2 6
2 Bunches Grapes, (for best and heaviest)	-	-	3 1,2,3	1 2 6
20 Roots Chicory	-	-	7 1,2	0 17 6
20 Lbs. Manufactured Chicory	-	-	5 1,2	1 10 0

Total Horticultural Products 482 121 £50 5 0

CLASS M.—AGRICULTURAL IMPLEMENTS.

Wooden Plough	-	-	20 1,2,3	4 10 0
Iron Plough	-	-	9 1,2,3	4 10 0
Pair of Harrows	-	-	5 1,2,3	2 5 0
Fanning Mill	-	-	3 2,3	1 10 0
Threshing Machine	-	-	4 1,2,3	10 0 0
Grain Drill	-	-	4 1,2,3	6 0 0
Straw Cutter	-	-	9 1,2,3	2 5 0
Smut Machine	-	-	2 1,	1 10 0
Grain Cracker	-	-	1,2	3 10 0
Corn and Cob Crusher	-	-	2 3,	0 10 0
Clover Machine	-	-	1 1,	2 0 0
Two-horse Waggon	-	-	12 1,2,3	6 0 0
Horse Rake	-	-	1 1,	1 0 0
Metal Roller	-	-	3 1,2	4 15 0
Reaping Machine	-	-	1 1,	5 0 0
Stump Extractor	-	-	1 0,	0 0 0
Mowing Machine	-	-	1 1,	5 0 0
Cultivator	-	-	8 1,2,3,4	3 10 0
Set of Horse Shoes	-	-	8 1,2,3	1 10 0
Half dozen Narrow Axes	-	-	7 1,2,3	1 10 0
Half dozen Manure Forks	-	-	5 1,2,3	1 10 0
Half dozen Hay Forks	-	-	5 1,2,3	1 10 0
Half dozen Scythe Snaiths	-	-	5 1,2,3	1 10 0
Ox Yoke and Bows	-	-	3 1,	0 15 0
Grain Cradle	-	-	4 1,2	0 15 0
Half dozen Iron Shovels	-	-	1 1,	0 15 0

Total Agricultural Implements 126 56 73 10 0

CLASS N.—DAIRY PRODUCTS.

Firkin Butter, 56lbs or more	15	1,2,3	5 0 0
Cheese, 30 lbs. or more	26	1,2,3	5 0 0
2 Stilton Cheese, 14 lbs or more	-	-	9 1,2,3
Butter, not less than 20 lbs.	23	1,2,4	3 0 0
30 lbs. Maple Sugar	-	-	4 1,2,3
Sugar made by Indians	1	2	0 10 0
Starch	3	1,2	1 5 0
Collection Soaps	2	1	0 15 0

Total, Dairy Products, &c. 82 19 22 0 5

CLASS O.—DOMESTIC MANUFACTURES.

Side Saddle	-	-	3 1,2	1 15 0
Whips and whip thongs	-	-	1 1	1 10 0
Set of Farm Harness	-	-	5 1,2,3	3 0 0
Set of Pleasure Harness	-	-	7 1,2,3	3 0 0
Saddle and Bridle	-	-	3 1,3	1 15 0
Travelling Trunk	-	-	2 1,2	2 0 0
Side of Sole Leather	-	-	15 1,2,3	2 10 0
Side of Upper Leather	-	-	11 1,2,3	1 10 0

Skirting Leather	-	11	1,2,3,4,5	2	10	0
Calf Skin	-	18	1,2,3,4	2	0	0
Side of Harness Leather	-	14	1,2,3	1	10	0
Fur Hat	-	4	1,2,3	1	10	0
Fur Cap	-	11	1,2,3	1	10	0
Fur Sleigh Robe	-	6	1,2,3	1	10	0
Bootmaker's work	-	4	1,2,3	1	10	0

Total Leather and Furs 115 43 29 0 0

CLASS O, 2nd.—MANUFACTURES IN METAL, &c.

Specimen Silversmith's work	1	1	2	0	0
Ornamental Iron work, cast	1	1	1	10	0
Coppersmith's work	1	1	1	0	0
Iron Tin-proof Vault Door	5	1,2	2	15	0
Cooking Stove and Furniture	33	1,2,3	3	0	0
Parlour Stove	10	1,2,3	1	15	0
System of Ventilating Buildings	1	1,2	3	0	0
Balance Scales	2	2,3	1	0	0
Model Hot air Apparatus	1	1	1	10	0
Steaming Apparatus for feeding Stock	2	1	1	10	0
Set of Cooper's Tools	1	1,2	1	5	0
Set of Bench Planes	2	1	0	15	0
Pair of Hames	3	1,2	0	15	0
Blacksmith's Bellows	5	1,2	2	0	0
Rifle	3	1,2	1	5	0

Total manufactures in metal 53 26 25 0 0

CLASS P.—CABINET WARE, CARRIAGES, &c.

Specimen Sawed Pine	1	1	10	0
Specimen Sawed Oak	2	1	10	0
Do. Graining Wood	3	1,2,3	3	0
Centre Table	2	1,2	1	15
Sofa	1	1	3	0
One-horse Pleasure Carriage	4	1,2,3	3	0
Two-horse Pleasure Carriage	2	1	2	0
Dozen Broom Handles, turned	1	1	10	0
Dozen Flour Barrels	2	1,2	5	0
Wooden Pail	1	1	7	6
Washing Machine	1	1	10	0
Churn	5	1	15	0
Four or six pannelled door	1	1	15	0
Model Beehive	2	1,2	15	0

Total Cabinet Ware, &c. 29 22 19 2 6

CLASS Q.—WOOLLEN & FLAX GOODS.

Woolen Carpet	-	1	0	0	0
Woolen Blankets	-	7	1,2,3	3	10
Counterpanes	-	10	1,2,3	2	5
Flannel	-	4	1,2,3	2	5
Satinet	-	7	1,2,3	2	5
Broad Cloth	-	3	1	2	0
Home-made Flannel	-	6	1,2,3	1	10
Fulled Cloth	-	4	0	0	0
Shawls, home-made	-	2	1	15	0
Linnen Goods	-	3	1,2,3	1	10
Flax and Hemp Cordage	-	10	1,2,3	1	10

Total Woolen and Flax Goods 56 23 17 10 0

CLASS R.—LADIES' DEPARTMENT.

Crotched Work	-	31	1,2,3	2	5
Woolen or Cotton Netting	-	11	1,2	1	5
Fancy Netting	-	7	1,2	1	5
Fancy Knitting	-	18	1,2,3,4	2	0
Embroidery	-	15	1,2,3,4	2	15
Worsted Work	-	47	1,2,3,4	1	17
Raised Worsted Work	-	19	1,2,3	2	5
Wax Fruit	-	1	1	15	0
Wax Flowers	-	11	1,2,3	1	10
Wax Figures	-	1	0	0	0
Pair Woolen Socks	-	9	1,2,3	1	2
Pair Woolen Stockings	-	4	1,2,3	1	2

Quilts	-	-	-	-	38	1,2,3,4,5	5	0	0
Gentlemen's Shirts	-	-			1	2		10	0
Pair Woolen Mittens	-				8	1,2	1	0	0
Pair Woolen Gloves	-				1	2		7	6
Hat, Canadian Straw	-				6	1,2,3	1	2	6
Total Ladies Department					229	44	26	2	6

CLASS S.—FINE ARTS, &c.

Professional List in Oil.

Historical Painting, Canadian subject	-	-	-	3	0	0	0	0
Landscape, Canadian subject	9	1,2	5	0	0	0		
Animals	-	-	-	4	1,2	4	0	0
Portrait	-	-	-	16	1,2	4	0	0

Amateur List in Oil.

Historical Painting, Canadian subject	-	-	-	7	1	2	10	0
Landscape Canadian subject	9			2	2	1	10	0
Animals, grouped or single	2			2	2	1	10	0
Portrait	-	-	-	4	2	1	0	0

Professional List in Water Colours.

Landscape, Canadian subject	12	2	1	10	0
Portrait - - - -	8	12	3	0	0
Minature - - - -	2	0	0	0	0

Amateur List in Water Colours.

Portrait	-	1	2	1	0	0
Animals	-	9	2	1	0	0
Miniature	-	3	1	1	10	0
Flowers	-	5	1,2	1	15	0

Professional Pencil and Crayon.

Pencil Portrait	-	2	2	0	0	0
Crayon Portrait	-	2	0	0	0	0
Pencil Drawing	-	4	1	1	10	0
Crayon Drawing	-	7	1,2	2	10	0
Coloured Crayon	-	6	1	1	10	0

Amateur Pencil and Crayon.

Pencil Portrait	-	4	0	0	0	0
Crayon Portrait	-	3	0	0	0	0
Pencil Drawing	-	11	1,2	1	15	0
Crayon Drawing	-	10	1	1	9	0

General.

Colored Geometrical Drawing	3	0	0	0	0
Collection Daguerreotypes	3	1,2	2	10	0
Lithography	-	11	1,2	2	10
Wood Engraving	-	5	1,2	2	10
Copper Engraving	-	4	1,2	2	10
Steel Engraving	-	3	1	1	10
Seal Engraving	-	2	1	2	0
Carving in Wood	-	3	1,2,3	4	0
Modelling in Plaster	-	3	1	2	0
Ornamental Writing	-	2	2	0	10
Stuffed Birds	-	4	1,2	1	10
Picture Frame, Gilt	-	1	2	0	10
Picture Frame, Veneered	3	0	0	0	0
Stucco Moulding	-	1	0	0	0
Stained Glass	-	2	0	0	0
Dentistry	-	1	0	0	0
Mechanical Production, for Mechanics' Institute prize	4	0	0	0	0
Ornamental Penmanship, competing for a gold medal	2	1 Medal			

Total Fine Arts 201 43 59 10 0

CLASS T.—BOOKBINDING, PAPER, &c.

Specimens Bookbinding	-	8	1,2,3	2	5	0
Ream of Printing Paper	-	5	1,2,3	2	5	0
Letter-press Printing	-	17	1,2,3	5	0	0

Total Bookbinding, &c. 30 9 9 10 0

CLASS U.—INDIAN PRIZES.				
Pair Moccasins, plain	-	1	0	0 0 0
Pair Moccasins, with Porcupine Quills	-	-	1	0 5 0
Do. do. with Beads	-	1	5	0 0 0
Total Indian Prizes	-	3	1	0 5 0

CLASS V.—POTTERY.				
Specimens of Pottery	-	5	1,2,3	2 5 0
Do. Draining Tiles	-	4	1,2,3	2 5 0
Dozen Bricks	-	-	1	0 10 0
Water Filters	-	-	2	1 0 15 0
Total Pottery	-	12	8	7 15 0

CLASS W.—FOREIGN STOCK & IMPLEMENTS.				
Devon Bull	-	-	1	2 10 0
Stallion, Agricultural	-	-	4	1,2 6 0 0
Blood Stallion	-	-	2	1,3 6 0 0
Merino Ram	-	-	2	1,2 2 10 0
Two Merino Ewes	-	-	2	1,2 2 10 0
Plough	-	-	22	1,2,3,4,5 4 5 0
Subsoil Plough	-	-	3	1 1 0 0
Pair Harrows	-	-	1	1 1 0 0
Fanning Mill	-	-	2	1 1 0 0
Threshing Machine	-	-	3	1,2 4 10 0
Seed Drill or Barrow	-	-	6	1,2 1 10 0
Straw Cutter	-	-	10	1 1 0 0
Smut Machine	-	-	0	0 0 0 0
Portable Grist Mill	-	-	1	1 2 10 0
Grain Cracker	-	-	1	1 1 10 0
Root Cutter for stock	-	-	1	1 1 0 0
Corn and Cob Crusher	-	-	2	1 1 0 0
Clover Machine	-	-	1	1 2 10 0
Reaping Machine	-	-	3	1 2 10 0
Cultivator	-	-	4	1,2 1 15 0
Assortment of Agricultural Im- plementt & Edge Tools	-	-	1	1 5 0 0
Total Prizes class	-	-	72	31 £50 0 0

Discretionary Entries and Prizes,

Embracing articles not enumerated in the published Prize List. The items cannot well be given in detail, as it would occupy too much space, nearly every entry under each general heading being a different article—and the articles being of Foreign and Canadian growth and manufacture indiscriminately, but the majority Canadian.

Figures in 2nd column from the left denote the whole number of Prizes.				
Horses, Cattle, &c.	-	-	45	8 £ 6 0 0
Poultry, &c.	-	-	16	3 9 15 0
Horticulture, Fruits, Seeds, &c.	-	-	79	38 17 10 0
Flour, Meal, Pot and Pearl Bar- ley, specimens Baking, &c.	-	-	18	3 2 5 0
Implements, Tools, Machinery, Models, and General Man- ufactures in Wood and Metal, &c.	-	-	178	41 47 5 0
Textile Fabrics, and Manufac- tures of Wool, Cotton, Linen, Furs, Leather, &c.	-	-	51	18 11 0 0
Animal Extracts, as Glue, &c., and Manufactures of Bone, Horn, Hair, &c.	-	-	23	3 2 0 0
Drugs, Chemicals, Condiments, &c.	-	-	10	2 0 15 0
Scientific Apparati, and Expo- sitions, &c.	-	-	11	3 3 0 0
Specimens of Ladies' Work, in- cluding Hamilton Carpet, &c.	-	-	27	5 8 15 0

Fine Arts, &c.	-	-	38	13	12 10 0
Indian Specimens, &c.	-	-	14	1	0 15 0
Saccharines, Salts, Oils, &c.	-	-	12	3	1 0 0
Other Miscellaneous Entries	-	-	11	2	0 12 6
Total Discretionary Department	-	-	523	143	£114 7 6

RECAPITULATION.

ARTICLES.	Total number of Entries.	Total number of Prizes.	T. Amo'nt.
CATTLE.			
Durhams	-	81	37 £82 5 0
Devons	-	30	20 48 5 0
Herefords	-	5	5 29 5 0
Ayrshires	-	21	17 49 0 0
Grade Cattle	-	33	14 27 10 0
Fat Cattle	-	21	11 33 0 5
Total Horned Cattle	-	191	104 260 5 0
Horses, class F.	-	212	31 118 0 0
Thorough-bred Horses	-	16	10 38 0 0
Total Horses	-	228	41 156 0 0
SHEEP.			
Leicesters	-	79	18 32 15 0
South Downs	-	39	18 32 15 0
Merinos and Saxons	-	33	15 31 0 0
Fat Sheep	-	18	6 12 0 0
Total Sheep	-	169	57 108 10 0
PIGS.			
Pigs, Large Breed	-	33	11 20 0 0
Do. Small Breed	-	15	8 15 10 0
Total Pigs	-	48	19 35 10 0
MISCELLANEOUS.			
Poultry	-	57	14 5 2 6
Agricultural Productions	-	336	85 123 10 0
Horticultural Products	-	482	121 50 5 0
Agricultural Implements	-	136	56 73 10 0
Dairy Products, &c.	-	82	19 22 5 0
Leather and Furs	-	115	43 29 0 0
Manufactures in Metal	-	53	26 25 0 0
Cabinet-ware, &c.	-	29	22 19 2 6
Woolen and Flax Goods	-	56	23 17 10 0
Ladies' Department	-	229	44 26 2 6
Fine Arts, &c.	-	201	43 59 10 0
Bookbinding, &c.	-	30	9 9 10 0
Indian Prizes	-	3	1 0 5 0
Pottery	-	12	8 7 15 0
Foreign Class	-	72	31 50 5 0
Discretionary Department	-	523	143 144 7 6
Grand Total	-	3042	909 1193 5 8

PRIZES OFFERED, &c.	Articles Enumerated.	No. of Prizes Offered.	Am. Offered
Prizes Offered in the List pub- lished before the Exhibition	425	1136	1423 0 0
Difference in amount between Prizes offered and those awarded	-	227	229 9 5

Sewing machines threaten to effect a complete revolution in thread and needle operations. About five hundred are now in full operation in America, and they are ordered from the manufactories faster than they can be supplied—They are now adapted to the sewing of boots and shoes.

An Artesian well, 334 feet deep, tubed 75 with cast iron, six inches in diameter, and throwing up 300 gallons of water per minute, has been sunk at Selma, Aly., at a cost of \$300.

The Agriculturist.

TORONTO, NOVEMBER, 1852.

BONE MANURE.

We insert for the benefit of our readers the following observations on the use and properties of bones for the purposes of manure. No town in Canada of any importance should be without the requisite machinery for grinding bones, and we hope soon to see the agriculturists of the country bestirring themselves in this matter, which is certainly one of no small importance. Throughout the well settled parts of the country large quantities of bones of the best quality may be collected, which, in their present state, are quite worthless, and not unfrequently a positive nuisance. It is the province of ever advancing science and art to convert what is apparently useless, and sometimes deliterious and offensive into products of convenience and utility. So of late years, a new and ready way has been discovered of making the various constituents, of which the animal framework is composed,—things usually regarded as worthless and offensive—restore fertility to soils which man's ignorance and cupidity had exhausted.

We will only remark further, that we understand Mr. Gamble has recently erected a Bone Mill in this neighborhood, and that one or two Agricultural Societies in other parts of the Province are making enquiries into the subject. The price of bone dust at Mr. Lamb's works is very moderate:—1s. 6d. per bushel when taken in quantities. At this rate it can be *profitably* applied to turnips, and we think also in many cases to wheat, when that article does not fall below four shillings a bushel.

UNIVERSITY OF TORONTO.

We, the undersigned, have learnt with much that Mr. Peter R. Lamb, of this city, has been the first that has had sufficient enterprise to erect the necessary Machinery for grinding bones for manure, at an expense of about £250.

It has been known for a number of years, by experienced Agriculturists, as well as by chemists, that Bones contains several fertilizing substances, more or less required by all cultivated crops, and that by the mere mechanical operation of crushing or grinding, they can readily be made available to the wants of vegetation, and thus constitute one of the richest and most permanent kinds of manure.

The rapid strides made in British Agriculture during the last quarter of a century, have been materially assisted by the application of Bones as a fertilizer; and it is not too much to say that without the ready and effectual means which they supply of preparing poor, light, and elevated lands, for a course of alternate cropping, Turnip Husbandry could not have been carried to anything like its present extent, and consequently those distinguished improvements which have of late years been effected both in the breeding and fattening of Stock, and the cultivation of root and grain crops, must have been greatly impeded. In England, so high is the repute of this manure, that bones are carefully collected, not only in the larger towns, but also in villages and farm houses, and such is the present demand for them, notwithstanding the heavy importations of guano, and the large manufacture of different kinds of artificial manures, that some thirty or forty thousands of tons, amounting in value to upwards of £200,000 sterling, are annually imported, chiefly from the countries of northern Europe.

Although bones vary considerably in their composition, according to the age and character of the animal, they may all, however, be considered as consisting of two essentially distinct parts; the mineral or earthy, and the organic. The former, amounting to about 60 per cent, consists chiefly of the phosphate of lime, together with small quantities of the phosphate of magnesia, fluoride of calcium, carbonate of lime, and common salt. The organic portion amounting to about 40 per cent, is made up of cartilage and fatty matters. Cartilage by being boiled in water is converted into glue or jelly, and is a substance rich in nitrogen, forming by decomposition much Ammonia, together with carbonic acid and a small quantity of a sulphur compound. Hence it is obvious that bones contain the most important materials for producing the living structure of plants.

As bones in their natural state are very slow in decomposing, it becomes necessary to break them

up into minute fragments, or what is better, when immediate effect on vegetation is desired, to grind them into powder. In this state they can be most effectually applied to the soil, where by the action of rain water, which always contains more or less of carbonic acid, their phosphates are readily dissolved, and are thus brought into a fit state for assimilation by the plant. While these changes are proceeding the organic portion of bones is being acted on by the air, and its decay accelerated, carbonic acid and Ammonia are the results, which with the phosphates, now reduced to a fluid state, become available as food to the growing crop.

The action of bones as a manure greatly depends on the state of fineness to which they are reduced. What are usually called "half inch bones," consist of a number of smaller fragments with a considerable amount in a state of mere powder; and in this condition they are best adapted to agricultural purposes; readily yielding a portion of their organic and mineral constituents to the wants of the first crop, provided the soil be sufficiently moist and porous. Coarse bones being extremely slow in decomposing their use is not economical, and whenever any decided effect is desired to be produced on the first crop, they should be reduced to as minute a state of division as possible. In turnip culture, this is absolutely essential, as the very existence of the crop will frequently depend on the immediate action of the manure pushing forward the growth of the plant during its early stages, beyond the reach and destructive ravages of the fly.

Several methods of accelerating the decomposition of bones, with a view to ensure their full and immediate action, have been, within these few years, proposed and tried. Steaming them, has, in some instances, been found advantageous; but the surest and by far the most economical mode is that of dissolving them by the application of sulphuric acid, (oil of vitriol,) a practice which has now become general in the United Kingdom. Several methods have been practised, but the simplest at present known, and therefore the best adapted to this country, may be briefly stated as follows:

Form a circular wall of ashes about 2 feet high, of sufficient diameter to contain the bones to be dissolved, which should be crushed as small as practicable, and the finer portions, obtained by passing the whole through a sieve, should then be placed around the inside of the wall; forming a thick lining to the barrier of ashes. The

coarser bones are placed in the centre, and the surface may be left, if necessary, slightly convex. Pour evenly over the lump sufficient water to originate decomposition, and turn the whole over thoroughly several times during the day, and when the bones are sufficiently and evenly saturated, apply the necessary quantity of sulphuric acid, taking care to continue the stirring of the mass till all the materials are thoroughly incorporated. In a day or two the ashes of the wall should be mixed with the bones, and the whole shroun into a heap for a week or ten days, when the mass should again be thoroughly stirred, and if necessary, more ashes added, and the mixture in a few days will be sufficiently dry for use. It may be applied either broadcast or by the drill. The amount of sulphuric acid, at the strength at which it is ordinarily obtained in commerce, required for this operation, is from one fourth to one sixth of the weight of bones. It has been proved by the most satisfactory trials, that 8 or 10 bushels of bones per acre, treated in this way produce as much, if not greater effect, than twice that amount applied in a dry state.

Bone manure is peculiarly adapted to exhausted arable land, and upon poor unproductive pastures, its application has been attended with the most striking results. The soil in such cases having been exhausted of its phosphates by repeated cropping, or, as in the case of pasture, by the gradual deprivation of these materials by the milk, cheese, and bones of animals, that have been sold off through a long series of years without any adequate return in the form of manure; a liberal dressing of bone dust speedily restores the equilibrium, by returning to the weakened soil, the very ingredients of which it had been deprived.

Bones have been used with great economy and success in connection with farm-yard manure, rape cake, guano, &c.; and mixtures of such kinds, when judiciously combined, have generally advantages over single fertilizers. Bones have been applied with marked success to sickly or decayed fruit and forest trees; in such cases it is not necessary to reduce them to powder, as in a coarser state they continue to act for a greater number of years. For root crops, especially turnips, this manure is of all others the best adapted; and turnips dressed with bones, have uniformly a greater specific gravity than when manured with other substances, and consequently contain a larger amount of nutritive matter, and keep longer in a sound condition. In England, 15 to

20 bushels of dry bones per acre, are considered a liberal dressing for turnips, and when they are dissolved in acid, half that quantity will suffice. The seed and manure are deposited in rows by a single operation of the drill, an implement which has been lately so far improved, as to prevent the seed from coming into immediate contact with the manure, by causing the intervention of a little soil, thereby preventing guano, and such like substances, from endangering the germination of the seed. Large quantities of bones in the cotton districts of England, are boiled for making size, a gluey substance, which is extensively employed in calico-printing. Such bones, however, being deprived of a portion of their organic substance only, the phosphates remaining undisturbed, are found to produce the most marked improvements on the deteriorating pastures of Cheshire; they operate more quickly even than bones unboiled, but their duration must be briefer, and consequently their value diminished, when a series of years or an entire rotation is taken into calculation.

As the highly fertilizing properties of bones have now been fully tested, both by scientific research and practical demonstration, every effort to collect and reduce them to a proper state for the purposes of manure is deserving encouragement; and in a country like Canada, where thousands of acres, formerly highly productive, have become almost sterile by the practice of repeated cropping and non-manuring, bones unquestionably rank among the most powerful and economical means of effecting a restoration.

HENRY CROFT,
Professor of Chemistry.

GEO. BUCKLAND,
Prof. of Agriculture.

Toronto, Nov. 1, 1852.

SUGGESTIONS RELATIVE TO THE PROVINCIAL EXHIBITIONS.

To the Editor of the Canadian Agriculturist:—

SIR,—In submitting for the consideration of the Provincial Agricultural Association and the public, suggestions bearing upon a few necessary changes connected with the present system of carrying out the Annual Provincial Exhibitions, I will not take up your valuable columns for so doing in offering an apology, but urge as my excuse the growing importance of these great *Canadian Agricultural and Mechanical gatherings*, and the favor with which they are countenanced by the intelligence of the land and the

public generally, and the desire there exists with the officers of the Association, that the system of *getting up the arrangements*, and *general management* of Exhibitions be as extended, simple and complete, so to attain the object of the Institution as may be practicable. Perfection is not to be expected, but improving changes, based upon the experience of the past may, it is hoped, be gathered and introduced into the present system.

The mode at present followed of making entries of Stock, Agricultural and Mechanical Productions, as well as other articles intended for exhibition, only on the day previous to, and the first and second days of the Fair, appears to have been attended with serious objections, involving hurry and confusion, sometimes unnecessary expense, much uncertainty and great inconvenience; and at the same time leaving the Association and the managing Committee comparatively ignorant until the day of the Exhibition comes round of what is to be presented for Exhibition; who the exhibitors are to be and where they are coming from, or what accommodation it is necessary to make for their reception.

Instead of the present system permit me to suggest:—

1st. That proper ruled sheets with printed headings, in which entries for the Exhibition may be made and filled in, be forwarded by the Agricultural Association, in duplicate, to the President of every County Agricultural Society in Canada West, within two weeks after the list of Premiums for the current year is determined upon, accompanied with sundry copies of such list.

2nd. That intending exhibitors report to the President or Secretary of the local County Society in the County in which they reside, the stock, productions, &c., which they intend to forward for Exhibition,—such stock, productions, &c., to be filled into the sheets under the proper heads: one copy of these sheets to be returned to the Secretary of the Provincial Association, signed by the President, Vice-President, or Secretary of the County Society, at least one month before the date of the first day of the Exhibition, and the other copy retained by the County Society.

3rd. That each County Society, upon transmitting the *entry sheets*, shall, at the same time, forward the names of nine persons residents of the County, who have been nominated by their Society, who promise, or are likely to attend, to act as judges, if required, at the Provincial Ex-

hibition; such persons to be admitted, with their families, to the Exhibition Grounds free of charge.

4th. The entry money, as at present, be paid to the Treasurer of the Provincial Association when the stock, productions, &c., reach the ground, and are presented for admission by the exhibitor, or his agent.

5th. Stock, productions, &c., Foreign or from Canada East, the entries to be made only on, or the day previous to, the first day of the Exhibition, in the manner in which such are now made, viz., to the Secretary and Treasurer of the Association on the grounds, only at an office booth appointed specially for that purpose.

6th. When the premiums are announced by the Secretary, on the last day of the Exhibition, and thereafter published in the *Agriculturist*, let them be so done under the heads of the respective Counties from which stock, productions, &c., come.

7th. Let the judges be selected and appointed at 12 o'clock, noon, of the first day of the Exhibition; and proceed to discharge their duties on the second day, commencing at 9 o'clock in the morning. After 6 o'clock in the evening of the first day, let no stock, productions, &c., be admitted to the grounds, whether home or foreign, to compete for prizes.

8th. Let the public be excluded the first and second days of the Exhibition, at any rate till such time as the judges shall have got through with their duties, except upon payment of five shillings each.

Should the foregoing suggestions be considered worthy of adoption in carrying out future Exhibitions, I beg to remark in explanation of the same, that the Association will have the interim between the date of the receipt of the *Entry Heads* and the days of the Exhibition to collate the Entries and prepare the books. construct the necessary pens, booths, &c., without hurry, confusion and uncertainty. Each County will be brought into direct competition with others, and and thrown upon its own exertions in the bringing forward and display of its productions; every inhabitant of such County, whether Agriculturist or not, having an interest in the character of the County, and who would desire to see its resources, Agricultural, Mechanical, and Mineral, take a creditable stand among her sister counties, may by applying to the Local Agricultural Society, be informed from time to time of what Entries are being made for the Exhibition, and exert his influence accordingly. In publishing the awarded premiums under the heads of the respective Counties to which the successful competitors belong, persons desirous of purchasing may avail themselves of this knowledge; the public will see at a glance the choice productions of the various Counties, and judge of their comparative merits accordingly, and a friendly and beneficial emulation and rivalry will be created between the different Counties for the high fame of public opinion. Great complaints have been made heretofore by the public at the delay in opening the

grounds for admission, the Judges have also been much inconvenienced by a pressure of persons who had gained admittance, in interfering with them in the discharge of their respective duties; loss has also been suffered by the Association in entrance money, in the delay to open the grounds, therefore is it suggested that the judges be appointed and proceed to the discharge of their duties *as before named*, so to secure, if possible, at least two full days for admission to the public.

With your permission I will take the liberty of again addressing you, on a future day, on the subject of the Provincial Exhibitions.

I am, Sir,
Yours truly,

WM. MATTHIE.

Brockville, October, 1852.

OUR LATE PROVINCIAL EXHIBITION.

As many of our readers will feel an interest in perusing the published opinions of distinguished Agriculturists from a distance on the Exhibition recently held in this city, we subjoin an article from the "*New York Farmer*," an excellent weekly agricultural paper, published in Albany, by Elon Comstock, Esq., Editor and Proprietor, whom we beg to accept our best thanks for a number of copies of his interesting and instructive journal. We can assure our American friends that the just and liberal spirit in which they conclude their notice of our proceedings, is heartily reciprocated on this side the lakes. In advancing the interests of our common humanity, by promoting the improvement of the noblest and most indispensable of the arts, and the great civilizer of nations, may we both be long distinguished, and render each other all the aid in our power.

The annual exhibition of the Provincial Agricultural Association of Upper Canada was held at Toronto, on the 21st to the 24th of September inclusive. Having had the honor of an appointment as Delegate from the N. Y. State Agricultural Society, we had looked forward with pleasant anticipations to the occasion, as one which would afford us an opportunity of witnessing the representation of Canadian Agriculture, and of Canadian farmers, and of extending our acquaintance with the leading agriculturists of the Province. In this we were disappointed for unexpected engagements prevented our attendance, and we are obliged to rely on the information furnished by those in attendance from this State, in making up our notice of this great exhibition of Canadian industry. Fortunately, however, we are enabled to present from a reliable source the general character of the exhibition. Hon. Henry Wager, President of the New York State Agricultural Society, who with Mr. Butterfield from Utica, went out as delegate, did us the favor to write us from Toronto his impressions of the exhibition, and the kindness extended to the New York delegation. Since his return we have received from him a personal account of the affair, and take pleasure in presenting to our readers some facts with regard to the exhibition.

The enclosure for the show contained seventeen acres, beautifully situated on College Avenue and William street, with a fine grove for cattle, and all the comforts and conveniences for such an occasion. We have before us, an engraved map of the grounds, and all the erections from which we judge that our Canadian neighbors are not at all behind us in the preparations for their annual holiday. The building devoted to Fine Arts and the Floral department was large and tastefully decorated. Agricultural Hall, Mechanic's Hall, the President's Stand, President's and other tents, the refreshment tents, Committee rooms, ticket office, and all the conveniences required, appear on the engraving, and were we are told, most conveniently arranged, and fitted up for the occasion.

The exhibition was generally good, and although not in former years equal to our State Fair, has been constantly gaining upon us, until in some departments we must yield the palm. The show of swine was far better than ours; of draft horses also superior. In vegetables the display was sufficient to convince any sceptic of the productiveness of Canadian soil, and the skill of Canadian agriculturists.

Floral Hall did great honor to the taste and ingenuity of the exhibitors. The crayon paintings, needle work, and other specimens of female industry and accomplishments, attracted universal admiration, and bore evidence of the attention given to these departments by the ladies of Canada West.

The stock of Canada has been rapidly improving for some years past, as all know who have been accustomed to see the department of "Foreign Stock" at our own State Fairs, in which some choice animals have been exhibited by Canadian breeders. In sheep, particularly the mutton breeds, they greatly excel. But we cannot speak further of the *Show*.

We are requested to acknowledge on behalf of the delegates from this State, the great obligations under which they were placed, by the kindness and unremitting attention bestowed upon them by the President of the Society, Hon. Mr. Street, M.P.P., Mr. Buckland, the Secretary, Messrs. Fergusson, Marks, Thompson, and many others, who contributed to render their visit a most delightful and agreeable one, and caused them to treasure up recollections of their visit which will not soon be effaced. We only regret that we were deprived of the pleasure of sharing in the enjoyment of the occasion.

There is no mistaking the fact that the spirit of improvement is abroad among Canadian farmers, and that they have in the last five years, made rapid advancement in their profession. May the spirit of friendly rivalry continue and increase until both countries shall have become fruitful, and bud and blossom as the rose.

We gladly make room for the following remarks in the October number of the *Lower Canada Agricultural Journal*, and take this opportunity of expressing our cordial desire of cultivating more frequent intercourse and friendly relations between the two great Societies of the Upper and Lower Sections of the Province, as intimated by our respected cotemporary, in his September number. Mr. Evans has already given substantial proof of his sincerity by a donation of a set of the Journal and his other publications to our Board of Agriculture; and should the Agricultural Bill of the Hon. Malcolm Cameron,

now before Parliament pass into a law, it will afford many opportunities of interchanging thoughts and forming more intimate relations, by bringing both sections of the Province under one united system, as regards the government of Agricultural Societies, with as few exception as possible.

That the Exhibition was highly creditable to the agriculturalists of Upper Canada, there cannot exist a doubt. The horses, neat-cattle, sheep, and swine, were excellent, affording convincing proof of the skill and enterprise of the farmers of that section of the Province. The show of horses, and of Durham cattle in particular, was very superior. The show of Leicester and South Down sheep was also very good. We were told of prices paid for some of these stock that we would scarce venture to publish, least our statement might be discredited. A few French Merinos were shown of large size, and said to produce a quantity of wool which we did not believe possible, from the appearance of the sheep. We observed that one of the rams had not been shorn this year. These sheep were also said to be sold for what was a very large price, in our estimation. A small lot of Highland cattle were shown, imported by a gentleman from the Isle of Sky. They were of small size but we have no doubt, they might be found a profitable stock for many sections in Canada. Their peculiar form, fine mellow hides, and short legs, prove their propensity to fatten readily; but as for their milking qualities, we are not acquainted with them. There was a great display of fowls. The show of implements was very fair, both of Canadian and American manufacture. We were glad to see that Mr. Jeffrey, of Petite Cote near Montreal, obtained prizes for a drill and swing plough, a drill grubber, and a root slicer. This proves that we may have good implements in Lower Canada, if we only purchase them. The fall sown wheat, was of very superior quality, in particular, the sample that obtained the first prize. The Indian corn was excellent, but the specimens of roots were not of very large size. The show of fruit was not extraordinary, though we believe it was generally superior to any we could show in Lower Canada. We have seen numerous varieties of very superior plums in the neighborhood of Toronto. The show of dairy produce was very good, particularly cheese.

There was a very numerous attendance at the Exhibition. We were told that 30,000 persons visited the show ground, on the third day (Thursday, 23d,) and from the crowded state of the extensive enclosure for the whole day, we can credit this statement. The most disagreeable circumstance connected with the Exhibition, was the crowded state of the hotels and lodging places. For ourselves we were so fortunate as to obtain accommodation from a gentleman, Mr. Crew, acting assistant Secretary of the Association, who very kindly invited us to his house, and kept us there until the end of the fair, and to this gentleman we beg to offer our most grateful acknowledgments. At any future Exhibition, the Upper Canada Agricultural Association could not confer a greater favor upon visitors from Lower Canada, whether invited or not, than by procuring comfortable accommodation for them at hotels, for which visitors would be willing to pay liberally. Agriculturists from Lower Canada do not go so great a distance, exactly, to pay complimentary visits, but rather to see the Agricultural productions of the country, to make acquaintance with those who have produced them, and to learn the means by which these results

are obtained. These ought in reality be the motives of agriculturists in attending such exhibitions, or they should not visit them, and we confess they have always been our motives; we were desirous to see, hear, and learn, and we cared not a straw, about giving or receiving compliments.

Perhaps it may be as well to submit a few general remarks in reference to this Exhibition. Though not an inhabitant of Upper Canada, we were delighted to see the skill and intelligence of the agriculturists with whom we had the good fortune to have any communication. It is these men, and others like them, that has made the late exhibition an interesting one. It would be in vain that Upper Canada had a good soil, and favorable climate, if there was not skill and capital employed in its cultivation. In Upper Canada, they have a highly respectable class of gentlemen residing throughout the country, mixing and associating with practical farmers, who thus assist and improve each other. These are generally emigrants, a large portion of whom, have brought capital, and some both skill and capital to the country. We have not the same advantages in Lower Canada, as very few of those who have the means of proceeding further, settle in that country. There is an unjustifiable prejudice against Lower Canada that prevents the settlers who would be the most useful from settling there. Another cause, that emigrants are anxious to go on to their friends, and settle among those who are known to them, and are doing well, and unquestionably there is a great advantage when coming to a strange country, to be able to make a settlement amongst a skilful and thriving class of farmers, rather than were they are not so. It creates a justifiable emulation to cultivate and manage as well as the best they see about them, and if they require instruction, they cannot fail to learn. Good breeds of live stock have been introduced by settlers who had capital, and they have spread far and wide throughout the country, and their management appears to be well understood. Here is a commencement of the materials which are necessary to constitute a good system of agriculture, and to these causes we may fairly ascribe the present favorable position of agriculture in Upper Canada. We do not pretend to say that all the settlers who arrive in that country are experienced farmers having capital, nor would it be advantageous if it were. Those, however, who have capital, employ such as have none, until the latter acquire both practical skill and sufficient capital to commence on their own account, and then they also become useful farmers. Hence Upper Canada has, at the present moment, skilful farmers in every section of the country who will be sure to maintain the progress of agricultural improvement. A skilful and industrious class of settlers are as necessary to secure the prosperity of a country, as a good soil and climate and skill and industry will frequently overcome the disadvantages of an unfavorable climate and soil. On our first acquaintance with the agriculturists of Upper Canada, at the Exhibition at Niagara, two years ago, we formed the same opinion of them as we now submit, and the late Exhibition has only confirmed that opinion. On a former visit to Toronto market, we were led to suppose, that beef, mutton, lamb and veal, were of as good quality in Montreal market as that of Toronto. We now, however, admit we were in error, and have no hesitation in saying, that the general quality of the beef, mutton, lamb and veal is much superior in Toronto, to either Montreal or Quebec. There may be occasionally as good a show of these articles in our markets as in Toronto, but it is not generally so.

We now beg to say a few words of Lower Canada, and its capabilities for a successful system of Hus-

bandry. First, as to the quality of the soil, we do not believe that it is much, if anything, inferior to that of Upper Canada. There are, doubtless, fine tracts of new land in Upper Canada, but so there is of old, cultivated, and new land in Lower Canada.

In the latter country, wheat will not succeed so well as in the former, but every variety of other grain, with the exception, perhaps, of Indian Corn, will succeed equally well as in Upper Canada, and some better. Root crops, hay, and pasture, on an average, will be more productive in this section of the Province; why then should we not be able to have good stock, good dairies, and profitable farming? It is not, certainly, either the climate or soil that would prevent it, and we have better and more convenient markets. We must, therefore, endeavor to find some other cause why our Agriculture should not be generally as far advanced in improvement as in Upper Canada. There is as good farming in Lower Canada as in any part of America that we have seen; but this we are sorry to be obliged to admit is not the general character of it. We have fairly described what we know of the state of Agriculture in Upper Canada, or rather the results of their system and management, and also, submitted our opinion as to the means by which this system has been introduced, by, we may say, an entirely new population. This latter circumstance of a new population introducing their own system of husbandry may have been favorable to the establishment of a more perfect system than would be possible, where a defective system has been previously in operation for a long period. All these matters deserve serious attention. We know by experience, it is much less difficult to establish a good system of husbandry, (if we know it,) in a new country, than in an old country, where defective modes of farming have been long practised. In the first case there are not any old customs or prejudices to be overcome, but in the latter case, we have all these difficulties to contend with, when attempting to introduce a new system of Agriculture. We would strongly recommend parties interested in Agriculture in Lower Canada to visit Upper Canada, and their Agricultural Exhibitions, and they will be much interested, and acquire much useful information. There is nothing like seeing and judging for one's self. It will be easy to perceive the lively interest that is manifested by a large proportion of the population, in the progress of Agricultural improvement. It would be difficult to persuade the citizens of Montreal to subscribe six or eight hundred pounds currency towards an Agricultural Exhibition, as they have done in Toronto.

We hope it may not be supposed from what we have stated, that Agricultural improvement is not progressing in Lower Canada. On the contrary, we can assure our readers that the progress of improvement is very satisfactory, and there is not a doubt but it will advance rapidly when the advantages of an improved system is more generally known in the country by the rural population. The cultivation of root crops have surprisingly extended within the last two or three years, where they were never before cultivated, and the Canadian farmers are becoming fully sensible of the value of these crops. Improved husbandry does not so generally prevail in this section of the Province as in Upper Canada, but we confidently hope we shall not be long subject to this reproach, and however greatly we may admire the latter country, and her agriculturists for their skill and industry, we would not exchange the numerous advantages of Lower Canada for that of Upper Canada.

On the evenings of Wednesday and Thursday, several addresses were delivered in the St. Lawrence Hall to crowded audiences. On Wednesday, Professor

Buckland delivered an excellent lecture, and gave full exposition of the manner in which he proposed to conduct the Experimental Farm which had been placed at his disposal on the College Grounds, and we have no doubt the farm will succeed under his able management. On Thursday evening the Minister of Agriculture, the Hon. Malcolm Cameron, addressed the meeting, and gave a full explanation of the duties which would devolve upon the proposed Bureau of Agriculture, and also explained the provisions of the new Agricultural Bill now before Parliament, for Lower Canada. It should be very satisfactory to Agriculturists, that they will now be directly represented in the Government, and we have confident expectations that it will have a most beneficial influence upon our Agriculture. We were glad to hear from the Superintendent of Education in Upper Canada that he was in favor of introducing Agricultural Books into the Common Schools, for the study of pupils.—This is a measure we have advocated in our own and other Journals for many years, and we had come to the conclusion that Dr. Ryerson was opposed to it, as we did not perceive that the plan was advocated in the Journal of Education, published by that gentleman. It appears, however, that he is now disposed to introduce this mode of primary instruction, and we have no doubt of the advantageous results. All we regret on the subject is, that our proposition did not meet with more favor long ago, as it was quite as necessary ten years ago as it is now.

It is our firm conviction that if agriculture in Lower Canada should not generally be so far advanced in improvement as in Upper Canada, the fault is not in the soil, climate, or situation. The ravages of the wheat fly was a great drawback to the Agriculturists of Lower Canada, from which the farmers in Upper Canada were comparatively free; but now they are introducing a greater variety of crops, and will not be so much depending upon wheat as heretofore, and as they are at present in Upper Canada. The breeds of neat cattle are not so large in Lower as in Upper Canada; but it remains to be proved to our satisfaction, whether a moderate sized animal of good form is not better adapted for this country than a very large size, and will be more profitable for the farmers. The winters are undoubtedly more severe with us than in the Upper Section of the Province, and must necessarily require a well sheltered yard, and warm stabling for animals, so as to equalize our temperature to that of Upper Canada. If we can do this, and produce as much food from a given quantity of land as they can in the latter country, we cannot see that the severity of the winter injures our circumstances much. It is very desirable that we should be fully sensible of the advantages of our situation. If we attempt to find a justification for bad farming, in any imaginary inferiority of soil, climate, or situation, we may at once give up all hope of improvement. Fortunately, we have abundant proof that our opinion of Lower Canada is correct, in the many excellent farms to be met with in every section of the country, where justice has been done to them, and it will not be supposed that these farms are favored by situation or climate, more than those which surround them.

There are some other things in which we are far behind our Toronto friends. For instance, in beautiful shaded walks, such as the College Avenue and College Grounds at Toronto. There is not so much as a perch of such roads, walks, or grounds for the accommodation of the citizens of Montreal. Our citizens may walk the dusty or muddy streets, or remain in their houses, which they please. In one point, the wharfs at Montreal are superior to any we have seen, but they are not exactly a suitable place for walking except for once, to see them. We cannot but say,

that the want of suitable walks for exercise and recreation in a city of 60,000 inhabitants is a certain indication of the want of refinement in those who have power to provide such accommodation. In the British Isles, where shade is not so necessary as here, we could seldom see a town of one fourth the size of Montreal, without beautiful shaded walks, for the public use. Men of wealth may have such advantages in their own gardens, but this should remind them, that those who are constantly and laboriously employed, require fresh air and recreation much more than they do.

IMPROVED BREEDS OF CATTLE.

To the Editor of the Agriculturist.

DEAR SIR:—I should not, at this busy season of the year, and with sickness still in my family, have occupied my time, nor have taken up further space in the columns of your valuable journal with the above subject, but that I feel, from the tenor of Mr. Tye's letter in your August number, imperatively called upon to notice its contents.

Mr. Tye, it appears is almost as incensed with me as Mr. Sotham, because I won't write and act against my own conviction, or in other words, that because I won't think and write as he and Mr. Sotham does regarding the merits of the two separate Breeds of Cattle they each patronise, that I am not privileged—to speak or write at all on the subject.

I appeal to your candour, Mr. Editor, and to the decision of your readers, if such is not the case? Is it possible then, let me ask, if any controversy on the subject fraught with some importance at least to some of your readers can be carried on with good feeling or usefulness to any party? Mr. Tye commences by mystifying and falsifying my statements which appeared in your number of July 1851, regarding the improved breeds of cattle. This I think, you will allow should not pass without some notice from me. He commences by saying that I asserted that the Durham cattle deserved more premiums, because they were more numerous than any other improved breeds, and insinuates that I have stated *that* as the only cause. And again, that I have spoken disparagingly of a breed of cattle that Mr. Sotham patronises and has imported. To this, as well as to the former accusation I unequivocally dissent. And it really seems strange to me that Mr. Tye, after a twelve months study of the subject, should not have been able, before now, to dis-

cern that my letter would admit of the construction he now puts upon it.

Is it, that he begins to think Mr. Sotham has got too hard a rap in my last letter in your July number, and that he thinks he ought to sympathise with him a little in the matter; or is it that Mr. Tye, having a few good Devons that he wishes to dispose of, is desirous of calling attention of purchasers to his Herd. I cannot but infer this after his long silence, as *I* have not been writing of late about *Devon Cattle*.—What, therefore, can be his motive for stirring a fresh a subject on which he has been silent nearly a year. It would seem from Mr. Tye's remarks that he has been very much at a loss for a subject to write upon in order to bring his Devons into special notice. I should be glad to have it shown me *how* the following sentences can possibly be distorted into implying *that* which my writings do not convey, and which they never were intended to convey, but which Mr. Tye is desirous they should. They run thus in my letter of July 1851. "As you have, I conceive, *sufficiently* explained to Mr. Tye the reason why more premiums are offered to the Durham, than to other pure breeds. I need not further notice that part of his letter, than remark, that in my opinion it conclusively shews that as the number of Durhams is far greater than other pure breeds in the country, they must be held, generally speaking, in greater estimation for all purposes, by the Agriculturist; or why should their numbers be so much larger! as there has been the same opportunity afforded the Farmer to patronise other breeds; why has he not availed himself of it? for this simple reason, that the *Durhams*, on the whole, if properly selected and bred with skill and care pay better! It is a fact known to all, that the Durhams, from a Herd of high character, and in an able breeder's hands fetch a *far higher* price for breeding purposes than any other pure breed in this country. They are frequently sold, to my own knowledge, from \$150 to \$400—and even beyond that I might safely go. Does any one ever hear of Herefords, Devons, or Ayrshires, fetching that price in this country, or anything near it? I think this circumstance alone is a pretty cogent reason for the Durhams being in greater numbers and more extensively patronised than any other pure breeds. But there are excellencies in the breed that I will now name, which doubtless induce people to patronise them so extensively, &c. &c."

Pray, Mr. Editor, have I here *asserted* that the *only* reason (as Mr. Tye would wish it to appear) why Durhams deserve to be patronised, is on account of their numbers in this country? Surely Mr. Tye cannot read plain english, or there is no excuse for him perverting the real meaning of the above extract in the manner he

has. He, however, probably has his own reasons for this plain misrepresentation of what I have actually written. And he embellishes his article with extracts from the *Colonist* and *Genesee Farmer* respecting the Fair held at Brockville and Rochester by these papers last year, in quite a cursory manner. The former he quotes to this effect "Cattle, nothing extraordinary; a number of fine Devonshire, and these seemed to be getting greater favourites with the farmers than the Durhams, which did not seem to be so much prized as formerly," and yet the gentleman who wrote this inaccurate statement, and who of course could not be at the fair, or he would not have written such a paragraph, is informed as well as Mr. Tye, by the Editor of the *Agriculturist* in an extract from the Society's Books that the *Durhams* were nearly double in number those of the Devons or Ayrshire, and the number of Herefords were as usual! And two years previously to that the Durhams were 54 in number; Devons, 9; Ayrshire, 12; Herefords, none! And yet Mr. Tye thinks there ought to be as many prizes offered for these latter breeds as for the Durhams, when year after year there is but two or three individuals to take most, if not all the premiums, and in one of the breeds (Hereford) *no cattle are ever shown!* What reason, I would ask, can there be in any one writing so absurdly? If farmers do not bring the cattle because they have not them to bring, where is the use of offering the premiums for mere form's sake? The Directors, I have little doubt, have been guided somewhat by these considerations, in their decisions as to the number and amount of premiums offered. At any rate, it is as you assert, a subject that will admit of a difference of opinion. Again, who would expect to find in the extreme easterly part of the province, the Durham breeds of cattle to any extent. But even in that section of the province, the numbers have considerably increased of late years. But if Mr. Tye will take the trouble to hunt up the number of cattle shown at each of our *other* Provincial Fairs, he will find that at every Fair the number in favour of Durhams is very far greater than that at Brockville. Mr. Tye then goes on to say that the *Genesee Farmer* asserts that more than half the number of cattle exhibited at Rochester last year, were Devons. This is utterly untrue, I was there myself, and know it to be so, and could I just now lay my hand on a return which I have by me I would give you an accurate statement from the Secretary's Books. You shall, however, have it shortly. But I well recollect its being stated to me by a Devon breeder from England and in this country also, that fully one third of those exhibited as Devons, were merely grades. But I must candidly admit

myself, as he did also, that there were a large number of fine animals there of the pure breed. But Mr. Tye should not be led away with the erroneous impression that, because he has met with that statement that the New York State Farmers have (which he would almost make appear) discarded all other breeds for the Devon. Not quite so fast Mr. Tye if you please, as you are overlooking a most essential point in arriving at a conclusion so inadmissible, for you must know that in different parts of New York State one improved breed is patronised more than another, and in many Counties immediately around Rochester the Devons mostly prevail. and in all probability this will be the case at the forthcoming Show at Utica. Mr. Tye, however, will not find that the Devons have preponderated, but that the Durhams have, in great numbers at every other State Fair except Rochester. And so Mr. Tye thinks, or would wish your readers to believe that my having set forth the merits of the Durhams as I and others have found them, as a Herd, and for having spoken, *as I thought*, in the most praiseworthy way of the Herefords and Devons, as the following extract also from my letter of July 1851 will shew, except in not admitting that the Herefords are famed as great milkers, is likely to do harm! In this instance at least, I must certainly accord to Mr. Tye a *peculiar faculty* of foresight that I and many of your readers happen not to be blessed with. I have hitherto thought, and I firmly believe, notwithstanding Mr. Tye's sophistry, that I shall continue to think that a *properly conducted* discussion on this, or on any other subject, is generally attended with advantage to some party, and regardless of Mr. Tye's prediction, I really cannot yet see *where* any harm is likely to accrue from any thing I have either written or advanced on the subject, confining myself, as I have done to fact, and stating nothing but what you know to be true. That part of my letter to which I have reference, and to which I beg leave to call the attention of yourself and readers, after having stated that I never saw or heard of the Herefords being patronized in any of the great Butter or Cheese counties in England with which I was familiar, runs thus:—"The Herefords, however, no one can dispute are a beautiful and profitable breed of animals, (I have grazed hundreds of them for Smithfield market) and doubtless there are good milking cows to be found amongst them, and it would indeed be strange if it were not so, in such an extended and old established breed. Then again the Oxen of the Hereford breed, as well as of the Devon are considered to be superior to the Durham for the yoke. This may be so, or it may not, for *when* and *where* let me ask has the test been fairly

made?" Again, further on in that communication I state as follows "I do not wish, Mr. Editor, that any one who may read this letter should, from anything I have advanced, be prejudiced against one breed or the other under discussion; I have merely stated what I know to be fact, and it will only go for what it is worth; but I would say let each individual try for himself which breed suits his soil or herbage, and his location or his purpose best. There ought to be great consideration paid to this circumstance in the selection of animals either for breeding or feeding purposes."—And in conclusion I add, "I think both the Herefords and Devons have many excellencies, that they are splendid breeds of cattle as well as the Durhams, and will at all times, if judiciously bred, please the eye, with their graceful form and symmetrical beauty, as well as fill the pocket. But I must in conclusion say, from my own experience, added to that of others, whom I have frequently conversed with on the subject, that for all purposes upon the farm, the Durhams will decidedly pay the most money to the Breeder, Dairyman and Feeder. If however, Mr. Tye, or any other gentleman can shew to the contrary from their experience, I shall be happy to hear of it, and see it proved." Now, Mr. Editor, in the name of all that is candid and honorable, what pretext is there for Mr. Sotham or Mr. Tye taking up this discussion with the manifestly ill-temper and indiscretion they have done? One says, that I have no business to write or say a word about what I and others have found, from years of experience, to be profitable and useful, and that I have taken a false position; the other gentleman says, that I was not entitled to courtesy from Mr. Sotham, because I wrote disparagingly of a breed of cattle he imported and patronised. Now, if such sentences as those I have quoted from my former letter, and which, as plainly appears, have given such umbrage to Messrs. Sotham and Tye, can bear the construction which these gentlemen put upon it, with all the tortuosity they can bring to their aid, I must at once and for ever confess that I no longer know anything of the meaning which the English language is capable of conveying to the mind. Mr. Tye states that he hopes the Hereford breed may be more known in this country. With all sincerity can I say so too, for it is perfectly clear to me; as it must be to all breeders, that the more *pure blood* we can infuse into our herds, the better will it be for the country,—notwithstanding the patronage that some gentlemen wish still to give to that race of *critters* which stand *starvation* best! I hope, Mr. Editor, to have a word to say on the subject by and by.

I must, however, before I drop my pen, beg

to express the gratification I have derived from a perusal of the proceedings at the March meeting of the Farmer's Club of Hamilton Township, of which John Wade, Esq. is President. The merits and profits of the Durham breed are truthfully portrayed, and ably discussed, and I cannot but think would have proved quite edifying even to Messrs. Sotham and Tye had they favoured the meeting with their presence. I think great credit is due to Mr. Wade for the exertions he has made in introducing so useful a breed of cattle in this vicinity, and for bringing a subject of so much importance before the meeting. I hope that he will still follow up his exertions, and receive the merited re- to which ward he is entitled. And at a meeting of the Farmers of the United Counties of Frontenac, Lennox, and Addington, held subsequently at Kingston, I have still further pleasure in noticing the very able and business-like address of their much respected President (Angus Cameron, Esq.) whose allusion to the Durham breed, will not I fear, assist Mr. Sotham much in the war he has made with so little effect, against that splendid and highly popular herd.

What tack will Mr. S. get on now I wonder to evade such assaults and proof of the enemy. Who knows, but he will endeavour to find another Rev. Mr. Smythies, with the assistance of the partizan Mark Lane *Express* to aid him in his efforts.

The far-famed Durham Bulls "Belleville" and "Bamboo"! and the Short Horn Heifer "Buttercup" alluded to by Mr. Cameron must indeed have been *miserable animals* that they could not take *more premiums* against all other breeds. But perhaps they would, had there been more to take. Does not Mr. S. know, however, that innumerable instances of the kind could be produced, if hunted up. To the latter part of Mr. Tye's letter, I shall have a word in your next number, if time and circumstances will permit, relative to grade cattle and sheep, for I feel that I ought not to have infringed so much on your columns, but the extracts I have thought it necessary to make from my former letter, have lengthened this communication very materially.

I am Dear Sir,

Sincerely yours,

H. PARSONS.

Guelph, Aug. 25, 1852.

CULTIVATION OF FRUIT TREES.

MR. EDITOR,—I have read some very interesting essays in your useful paper on the culture of fruit, all of which I dare say are very good and very true, but I am still at a great loss to

know how to get at the best method of cultivating fruit trees so as to know how sufficient moisture is to be kept in a soil naturally dry during the extreme heat and drought of summer, especially if the ground is kept perfectly loose by frequent stirrings, and nothing allowed to grow on it to prevent the powerful rays of a midsummer sun from coming in immediate contact with naked and loose soil, and consequently heating and drying it to an indefinite extent. I have been very careful this year to stir the ground frequently under my trees and to allow nothing to grow on a space as large as the top of the tree. In the first part of the summer the trees grow very well, and so they do yet in moist ground, but in dry ground they seem to suffer much more from drought than they ever did before. The leaves on many of them are withering, and several of them appear to be dying, which I think they would not do if the grass or grain had been suffered to cover the ground. Most cultivators say that we would raise much better fruit if we would stir the ground thoroughly and frequently without raising any other crop on it, and some say it is the best way to have the ground under the tree covered with stones which would keep the ground cold and moist, and prevent weeds and grass from growing without having the roots cut and torn by the plough or spade which I should suppose would injure the tree. I see that in the *Agriculturist* page 215 Vol. III, an American gentleman has recommended mulching very highly which no doubt is very good if it can be properly done. He says not with straw or anything of the sort, but with ground if possible, as far as the roots extend. Now this gentleman is probably perfectly right, but I do not understand him. Does he draw fresh earth into his orchard and continue to fill it up year after year? Surely not. I have no opinions to offer upon those subjects myself, for I have not had sufficient experience. But perhaps you will condescend to enlighten my mind a little farther on the subject, through the medium of your paper, as it is a subject upon which the majority of Canadian farmers, as well as myself, are quite too ignorant and most of them more careless than ignorant.

A YOUNG FARMER.

ON THE GROWTH AND PROSPECTS OF FLAX IN THE COUNTY OF PORT NEUF LOWER CANADA.

To the Editor of the *Agriculturist*.

SIR,—On the river Port Neuf in the Parish of Cap-Sante there stands the largest paper-mill in Canada. A stranger to the manufacture views with wondering gaze the various stages

of the process from the sorting of the rags, to the Fourdrinier machine, and the collection of the continuous web with its accumulated electricity after its passage over the drying cylinders. Much curiosity is also excited on witnessing the operation of ruling the paper, and the no less interesting action of the almost self-regulating machine, attended by a child, for cutting the paper web to the required sizes.

Linen rags are well known to make the best paper stock. With a view to encourage a more extensive use of this fabric, and also to procure material for the manufacture of twine, the proprietors of this establishment have erected a scutching-mill capable of finishing 100 bundles of flax per day, each weighing 16 lbs. Flax-seed is furnished to those farmers that have none, and the straw is contracted for at £2 per 100 bundles. Three pounds of fibre are usually obtained from one bundle of straw. The grower is charged 2d. per lb. for scutching, a higher rate than can in future be maintained, but which it was necessary to impose in the infancy of the manufacture. The tow waste valued at 7 per cent., is made into paper, but those having flax scutched at the mill are entitled to half the tow.

In this County, and in Lower Canada generally, flax is sown, if on low grounds, on old pasture or meadow-land; on upland, it is sown after oats or barley. One ploughing only is given, and that in spring. This preparation of the soil is far from what the flax crop demands. The crop is never weeded, at least in the acceptance of that term as used in Europe. A large thistle may be occasionally pulled. This accounts for the state in which flax-seed is seen at oil mills before screening, containing a great variety of seeds which would never find their way there with ordinary attention to early management.

The seed is invariably allowed to ripen, and the reason assigned is, that otherwise the fibre could not bear its subsequent treatment in scutching and heckling. The fibre of those plants that are not matured at the time of pulling is said to be lost in scutching. After pulling, the flax is spread for three or four weeks, or until it is sufficiently dew-rotted, on the ground on which it grew; meadow or pasture land is always to be preferred. It is turned occasionally to prevent germination of the seed, and before lifting, that it may be dry. When taken up it is bound in bundles with withes, and the seed threshed off before drying.

Water-rotting is seldom practised, but a rottery on Schenck's principle is likely to be got up, and the flax then saved on the Courtrai system.

Drying by fire, which all must condemn, is a common practice. Three forked stakes are driven into the earth with three others about nine feet distant. Poles are laid on these on which the flax is evenly spread about four feet from the ground. A fire is applied beneath which renders the flax brittle for the brake. This is a very simple implement used before scutching which greatly facilitates that operation. A good hand-scutcher can finish five or six bundles per day, yielding from fifteen to eighteen pounds of fibre. The heckle consists of coarse iron spikes, about twenty four in number driven through a thick board in parallel rows. These serve to separate the fibre. A correct estimate of the per centage of heckled flax obtained by hand-labour from well cleaned fibre cannot be made as applicable to this country from the fact that little attention is given to the collection of data serving as material for calculation or comparison, combined with inferior management. Flax growers here can hardly give an approximation to the quantity of straw or weight of fibre grown per acre, or of the expenses attending its cultivation.

If the produce of an acre is estimated at two tons of straw, and the price at £3 per ton, the farmer will receive for straw £6. Estimating the seed at sixty-four bushels at sixpence per bushel will be £1 12, making a total of £7 12 per acre. Deduct from this the cost of seed, say two bushels at five shillings per bushel, all the other expenses £2, leaves £5 2s. per acre, on an average crop of flax.

The embryo of a large manufacture of flax is even now visible in this section of country. Its cultivation in small patches for domestic use is gradually giving place to its growth for market on an extended scale, mainly owing to the enterprise of Messrs. McDonald and Logan an eminent manufacturing firm, in whose hands its introduction as a staple is secure.

I am, Sir,

Your Obt. Servt.

A. KIRKWOOD.

Port Neuf, Aug. 12.

MODEL FARMS—AGRICULTURAL EDUCATION.

STAMFORD, C. W. Aug. 30.

To the Editor of the Canadian Agriculturist.

SIR,—In the August number is the report of the United Counties of Middlesex and Elgin recommending the establishment of a model farm with a good and well selected agricultural library, as one of the best means of increasing true and correct information on the theory and practice of the art.

Before any actual expense is incurred, the President and Directors are requested to take a second sober thought as to *how* a model farm can and will advance the interest of agriculture, beyond, the means at present open to every active and enquiring youth who intends to make agriculture a profession.

A lad of fourteen brought up on a farm must know all the practical details, or he will be a useless student at the model farm, the library will assist him, but is this more than he can learn at home with a few dollars expended on the periodicals of the day; these will teach him to cultivate a farm and raise crops if industrious, to carry theory into practice.

Not so with stock, a good judge is one of *nature's* favourites, like painters, poets, and musicians; the gift is inherent, it cannot be learned by books, lectures, or even in the field, it belongs to its owner and comes without study of any kind; experience may improve, but natural ability will always be more than a match for book learning in this important department. A good judge will always have good stock for the simple reason he knows how to select it.

To purchase, build, and stock a farm of 100 acres will require a considerable outlay, and what more can be done with this 100 acres than is practised every day upon thousands and tens of thousands of acres in a good state of cultivation, or by any one of the Society? Labour and manure are the great and efficient agents in productive farming, and if a well qualified manager is not procured the great object will not be obtained, and likely the society will have the difficulty of finding a good farmer and a good judge of stock in the same person. The President and members would do well to enquire into the present state of those model establishments in France, Germany, Switzerland, &c. which have outlived their founders and supporters; talent, if employed, must be rewarded or home will be as good as the model without the expense.

That a well conducted school would be an advantage in connection with the model farm or without it is not altogether Utopian, if a proper teacher can be procured and liberally paid for his services. Here again *all* depends on the person employed, if any peculiar advantage is to be gained over and above what the district school should afford.

By each one in his school district supporting and encouraging a good teacher, a good practical education could be gained at home as a two years residence at the model could give, by concentrating the home resources on the district school, a teacher of superior talent could be employed, and a higher standard of the *useful*

only be brought into full action, if all parents and each teacher would ask themselves this one simple question, what kind of instruction does my child or my pupils require to render them useful members of society? The answer would be reading and mental, not slate arithmetic; the young mind should be roused to activity by being daily exercised in the first four rules mentally and apply to practice in the every day business of social life. With dollars and cents a smart lad of eight or nine would thus master reading, and as much of arithmetic as he can employ to advantage in after life. If a few require more let the few learn, not all, and the after years devoted to the study of language so as to be able to write correctly and speak with propriety; and this can be learned at home, if proper means are taken to write a handsome letter or make a common sense speech is the aim and end of all school learning, let the pupils study the *useful*, and the *useful* only, and the point will be easily gained.

Yours, &c.

JAMES JONES.

WOOL FROM PINE-TREES.

Interesting accounts have recently appeared in foreign journals of a novel branch of industry carried on in Silesia, combining so much of ingenuity and utility, as to render a summary of the information very acceptable to those who are seeking for new sources of employment or of profit. It appears that in the neighbourhood of Breslau, on a domain known as Humboldt Mead, there are two establishments alike remarkable; one is a factory for converting the leaves or spines of the pine-tree into a sort of cotton or wool; in the other, the water which has served in the manufacture of this vegetable wool, is made use of as salutary baths for invalids. They were both erected under the direction of Herr von Pannewitz, one of the chief forest-inspectors, and the inventor of a chemical process, by means of which a fine filamentous substance can be obtained from the long and slender leaves of the pine. This substance has been called *Holz wolle*, wood-wool, from a similarity in its quality to that of ordinary wool; it may be curled, felted, or spun in the same way.

The *Pinus Sylvestris*, or Scotch fir, from which this new product is derived, has been long esteemed in Germany for its many valuable qualities; and instead of being left to its natural growth is cultivated in plantations of forest-like extent. In this way, many parts of a vast dreary, sandy surface, are turned to good account, for the tree grows rapidly on a light soil, imparting to it solidity and consistency, and affords shelter to the oak, which, under such favourable circumstances, acquires such vigour of development as to outgrow its protector. About the fortieth year of its growth, the pine yields considerable quantities of resin; and the value of the wood for building purposes, and for constructions immersed in water, is well known. Mr. Pannewitz has however, added another to its list of useful applications; and if the leaves can be employed as described, the *Pinus sylvestris* may become an object of culture in countries where it is now neglected.

The acicular leaves of firs, pines, and coniferæ in general are composed of a bundle, or fasciculus, as a botanist would say, of extremely fine and tenacious

fibres, which are surrounded and held together by thin pellicles of a resinous substance. If this substance be dissolved by a process of coction, and the employment of certain chemical re-agents, the fibres can then be easily separated, washed, and cleansed, from all foreign matter. According to the mode of treatment, the woolly substance is fine or coarse, and is employed as wadding in the one case, and in the other as stuffing for mattresses. Such, in a few words, is an explanation of Mr. Pannewitz's discovery. He has preferred the *Pinus sylvestris* to other species because of its spines; but there is reason to believe, that it is not the only kind which may be worked with advantage.

There is said to be no danger in stripping the trees, even while young, as they only need the whorl of spines to be left at the extremity of each branch, in order to continue their growth; all the other leaves may be removed without damage. The gathering should take place while they are in their green state, for at no other time can the woolly substance be extracted. This operation, which takes place but once in two years, affords employment and pretty good wages to a number of poor people, some of whom will collect two hundred pounds in a day. The yield from a branch the thickness of the finger is estimated at one pound, and a beginner will strip thirty such branches in a day. In the case of felled trees, the work proceeds with great rapidity.

The first use made of the filamentous matter, was to substitute it for the wadding used in quilted counterpanes. In 1842, five hundred counterpanes so prepared were purchased for the use of the hospital at Vienna; and, after an experience of several years, the purchase has been renewed. It was remarked, among other things, that the influence of the wood-wool prevented parasitic insects from lodging in the beds, and the aromatic odour arising from it had been found as beneficial as it was agreeable. Shortly afterwards, the Penitentiary at Vienna was provided with the same kind of quilts; and they have since been adopted—as well as mattresses filled with the same wool—in the Hospital de la Charite at Berlin, and in the Maternity Hospital and barracks at Breslau. A trial of five years in these different establishments has proved, that the wood-wool can be very suitably employed for counterpanes, and for stuffed or quilted articles of furniture, and that it is very durable.

It was found that, at the end of the five years, of wood-wool mattress had cost less than one made of straw, as the latter requires an addition of two pounds of new straw every year. In comparison with horse-hair, it is three times cheaper; it is safe from the attack of moth, and in a finished sofa no upholsterer would be able to distinguish between wood-wool and hair stuffing.

It has been further ascertained that this wool can be spun and woven. The finest gives a thread similar to that of hemp, and quite as strong. When spun, woven, and combed, a cloth is produced which has been used for carpets, horse-cloths, &c.; while, mixed with a canvas warp, it will serve for quilts, instead of being employed in the form of wadding.

In the preparation of this wool, an etherised oil is formed, of an agreeable odour, and green in color, but which an exposure to the light changes to a yellowish-orange tint, and which resumes its original colour on the light being again excluded. Under the rectifying process it becomes colourless as water, and is found to differ from the essence of turpentine extracted from the stem of the same tree. Its employment has proved most salutary in gouty and rheumatic affections, and when applied to wounds as a balsam; as also in certain cases of worm disease and cutaneous tumours. In the rectified state, it has been

successfully used in the preparation of lacs for the best kinds of varnish; in lamps it burns as well as olive oil; and it dissolves caoutchouc completely and speedily. Already the perfumers of Paris make use of this pine-oil.

With respect to the baths; it having been discovered that a beneficial result attended the external application of the liquor left after the coction of the leaves, a bathing establishment was added to the factory. This liquor is of a greenish-brown tint; and, according to the process, is either gelatinous and balsamic, or acid; formic acid having been produced in the latter case. When an increase in the efficacy of the baths is desired, a quantity of extract obtained by the distillation of the etherised oil above mentioned, which also contains formic acid, is poured into the liquor.—Besides which, the liquid itself is thickening by concentration, and sent out in sealed jars to those who wish to have baths at home, thus constituting a profitable article of trade.

We understand that these baths have been in operation for nine years, with a continual increase of reputation and number of visitors. That the facts are not exaggerated, would appear from medals having been awarded to M. Weiss, the proprietor and manager, by societies in Berlin and Altenburg, for the extraordinary results produced. As likely to lead to a new development of industry, the processes are especially worthy of attention.

The catalogue of utilities is, however, not yet exhausted; there is one more with which we bring our notice to a close. After the washing of the fibre, a great quantity of refuse membranous substance is obtained by filtration. This being moulded into the form of bricks and dried, becomes excellent fuel, and gives off so much gas from the re-in which it contains, that it may be used for lighting as well as heating. The making of a thousand hundred-weights of the wool leaves a mass of fuel equal in value to sixty cubic yards of pine-wood.—*Chambers' Journal*.

PUBLIC DEBT OF CANADA.

The amount of debt due by the Province up to 1st August 1852, was £4,635,999 3s 3d. Of this sum £1,157,463 8s embraces various grants for the construction of Public Works by the Legislature of Upper Canada, prior to the Union;—£177,498 13s 4d embraces Loans by Lower Canada, prior to the Union, for Montreal Harbour and Turnpike Trust, and £22,192 of it for Quebec Turnpike Trust. The Imperial Guaranteed Loan under acts 4 and 5 Vic., for Public Works amounts to £1,825,000. Grants by the Provincial Legislature subsequently for Public Works including payment to Welland Canal Share-holders, £1,475,019 11s 11d. The annual interest for this debt amounts to £226,568 8s 7d, averaging from 4 to 6 per cent, payable to the Bank of England, Glynn & Co., Baring & Co., and Bosanquet & Co.

Bank of Upper Canada.....	£250,085	14	9
Bank of Montreal.....	119,428	11	1
Bank of British North America...	77,850	0	0
Banque du Peuple.....	39,083	6	8
Do do	69,826	2	2
Commercial Bank M. D.....	54,854	9	9
Quebec Bank.....	15,068	2	8
City and District Savings Bank,			
Montreal.....	11,000	0	0
Gore Bank.....	3,097	10	5
City Bank.....	1,316	3	8

Total,..... £602,526 14 6

The Guelph Fall fair was held on Monday last, and was beyond comparison the largest and best ever witnessed in the locality. Cattle changed hands at prices 20 to 25 per cent in advance of recent rates. Yokes of Oxen of fair quality fetched \$60 to \$65; three year old Steers \$45; and two years old \$35; cattle for the butcher were greatly in demand.

HIGHLAND SOCIETY'S SHOW AT PERTH. TRIAL OF REAPING MACHINES.

The trial of the competing reaping machines took place on Friday at Muirton farm, within a mile of Perth. Shortly before the time appointed two o'clock, the crowd collected on the ground could not amount to less than from ten to twelve thousand people—from the carriage-in-four, with outriders, to the most humble labourer—a large proportion consisting of females; all parties appearing to take the greatest interest in the exhibition. The judges appointed by the Highland Society were the whole judges connected with implement department. A few minutes before two, the first reaper, Mr. Bell, started in fine style on a field of potato oats; the crop rather light upon a clay soil, the surface of which had been rendered smooth by the roller in spring, but owing to the deep furrows with high-formed ridges, being rather a severe trial. The horses and driver being apparently familiar with the work got on in an admirable manner. Nothing could be cut more evenly and regularly, the height of the stubble not exceeding three inches. After the judges were satisfied with the machine in the oatfield, the next competing implement, Hussey's made by Crosskill, Beverly was tried. This machine, in crossing the ridges, could not surmount the deep furrows. It, however, cut the oats up and down the ridges in a very efficient manner, leaving the stubble perhaps one or two inches higher than that left by Mr. Bell, but it did not cut clean where there was much bottom grass. The machines were next removed to a barley field—a very full crop, partially laid and twisted. This was cut by Mr. Bell's machine in an equally efficient style with the oats, cutting the corn, when closely lying towards the machine, as neatly as when it was standing. Mr. Hussey's machine did not cut the lying barley satisfactorily. The next was a wheat field, which was a very luxuriant crop—the variety Fenton—and which, to appearance, will yield about six quarters per imperial acre, the crop being after beans. The variety of wheat made the cutting of the straw a severe test of the powers of the implement; while the furrows being also at an angle to the line of cutting, added to the difficulty. Mr. Bell's machine cut the wheat successfully, leaving a stubble from two to three inches high. Mr. Hussey's machine was rather overtaxed by the luxuriance of the crop. On Thursday, Hussey's machine made by Crosskill for Lord Kinnaid, was tried near Errol, on a field of barley, and cut the crop in a very workmanlike manner. The crop and ground were

extremely favourable for the working of the machine; the crop standing rather light, and similar to the crops in America. This may explain the acknowledged success of these machines in America, and also wherever the crops are comparatively light. It may be necessary to explain to our readers that these machines were drawn by two horses, which went at a quick step, and as the grain was cut, a dozen of labourers followed binding and stooking up the grain. The judges in their report, unanimously found that Mr. Bell was entitled to the full premium for the following reasons—that his machine cut the corn in the best manner with the least waste, quickest as to time left the corn in the best order for gathering and binding, and was in every point superior to Hussey's reaping machine. After the machines were removed from the ground, not being permitted to approach them, we carefully inspected the work done, and we can state with regard to the oat field, taking into account that the variety was potatoes, that there was less shake and loss otherwise than ever we remember to have observed in the most careful hand-cutting. Where the barley was lying from the machine the stubble was elipt less close. In the wheat, though the cutting was very perfect, there was a loss, but perhaps less than in the average cutting of wheat in East Lothian with Irish reapers as the work is usually performed. A deputation from the Royal Agricultural Society having attended this meeting, were so satisfied with the performance of Mr. Bell's machine (Hussey's only being entered for their coming exhibition at Galway) that they offered to Mr. Bell to pay the whole expenses connected with a trial of his machine in the neighbourhood of their exhibition; they being satisfied that justice would not be done to the agriculturists in Ireland if they had not an opportunity of seeing the work of Mr. Bell's machine, compared with that of Mr. Hussey. As Mr. Bell's crop will be ready for cutting before the meeting of the Irish show, we trust that the machine will, in justice to his brother the inventor, the Rev. Patrick Bell, Carmyllie, as well as to our sister island, be sent. Here is an invention made twenty-six years ago, during a portion of which period, the exhibitor, Mr. Bell Inchmicnael, has cut nearly the whole of his crop every season with it. Shortly after the invention, at least four of the machines were sent from Dundee to America. At the great national exhibition, American reapers were exhibited, of which Mr. Hussey's was one which afterwards beat Mr. McCormick's particularly this season at Lewes, at the English Agricultural Society's meeting. It is perhaps, however right to state that Messrs. Garrett had improved Hussey's reaper, by making the knives on the same principle as the original invention, Mr. Bell's being only bevilled on the one side. Here is an important fact which the farmers of Scotland have overlooked, that a farmer occupying land in the Carse of Gowrie, has been cutting his crops successfully with this machine which after going to America, and being adapted to the lighter crops there, comes to England with a flourish of trumpets, as something new and wonderful to help the farmers to meet the com-

petition introduced by free trade—then comes to Scotland this Season, and by a large number of judges, consisting of practical farmers and mechanics, confirmed by the opinion of a deputation of Irish agriculturists, is declared to be inferior, in every respect, to the original reaping machine of Mr. Bell.

THE HIGHLAND AND AGRICULTURAL SOCIETY'S SHOW.

On Thursday, August 5, at the close of the Society's Exhibition, about 700 gentlemen sat down to dinner in the City Hall, Perth, the use of which was gratuitously placed at the disposal of the Committee of the Association by the Town Council. The Duke of Roxburgh, the President of the Society, occupied the chair—supported on the right and left by the Marquis of Breadalbane, the Provost of Perth, Lord Kinnaird, Sheriff Craufurd, Sir J. Ogilvy, Sir D. Dundas, Dr. Grant of St. Mary's Edinburgh, Chaplain to the Society, Sir John Richardson of Pitfour, Dean of Guild Ross, and Bailie Hewat. At the other end of the table, around the Duke of Atholl, who discharged the duties of croupier, were the Earl of Mansfield, Lord Panmure, Mr. Stirling of Keir, M. P.; Lord Strathallan; Sir Archibald Campbell, M. P.; Lord Stormont; Hon. T. Bruce, Lord Blantyre; Sir Michael Shaw Stewart; Sir Patrick Murray Thriepland; Bailie Imrie; Bailie Honey, Treasurer Kemp, &c. In the body of the meeting were Mr. Campbell of Craigie; Mr. Stirling of Kippendavie; Mr. Grant of Kilgraston; Mr. G. Patton, advocate, Edinburgh; Mr. Campbell of Monzie; Mr. D. Hunter, Blackness; Mr. W. B. Callander, Prestonhall; Mr. Richardson of Carhamhall; Mr. Turnbull, of Bellwood, &c. &c.

After the discussion of a substantial dinner the cloth was removed, and the intellectual department was spiritedly filled up. The chairman after a few happy introductory remarks, said—The Highland Society has now existed for a period of seventy years; and, if I may be allowed the expression, has been looked up to and respected by every other agricultural society throughout the kingdom. (Cheers.) It rarely indeed happens that the efforts of patriotic men to benefit their country have been attended with such signal success as that which has marked those of the founders of this Institution. I firmly believe that this was owing, not so much to the eminence and distinction which many of them held, but to the soundness of the principles on which the Institution itself was based, and to the admirable good sense and prudence which has characterised, and which still in its present Board of Directors continues to characterise those who watch over the administration of its affairs. I trust, gentlemen, that it may long

continue to maintain this high character, for it does appear to me that in the present state of the agricultural world every exertion will be required to promote improvement. But let me remind you that these exertions depend in some measure on yourselves. At the same time I hope and trust that the landlords will at all times be ready and willing to aid you in these efforts. (Cheers.) I say, gentlemen, it will require our united exertions to maintain for the tenantry of Scotland that superiority to which their skill, their industry, and I may add, their indomitable perseverance and integrity so justly entitle them. Great as are the advantages in a practical point of view which have resulted from the establishment of the Highland Society, I venture to say a new and more extensive field now lies before us. At present we are eminently called upon to proceed in the path we have been hitherto pursuing, when each day some fresh discovery opens to our view, the further we proceed and the greater success we attain in a work so honourable and so elevated. For if ever there was a case in which that truth comes before us in its full force—I mean knowledge is power—it is pre-eminently so in the aid which science confers on practical agriculture. (Loud cheers.) Each day we see the adaptation of some new principle in implements of husbandry or in the employment of some new substance to fertilize our soil. I trust, then, that the Highland Society will not lose sight of these ends, and that in connection with the landlords of Scotland it will do its utmost to foster and promote that spirit of improvement now abroad, from which, in my humble opinion, so much is at present to be expected. Gentlemen, by pursuing this course, you will secure both a physical and a moral object. We shall thus be scattering plenty and diffusing contentment throughout the land; and, what is more, by our constant intercourse with our tenantry, and our constant practice of giving them all encouragement when they stand in need of our assistance, we shall be extending the influence of kindness and kindly feelings around, we shall, so to speak, be ploughing up the subsoil of feelings and affection, and exposing what might perhaps have remained inert and barren but for the refreshing rays of social intercourse and converse. In a word, we shall be sowing on earth the seeds “of goodwill towards men.” It is in this opinion, and looking back with satisfaction on the past exertions of this Society, and with brighter anticipations yet for the future, that I call on you to drink, as though the words of the toast came home to you in their fullest acceptation—“Prosperity to the Highland Society, and success to the agricultural interest.” (The toast was drank amid the greatest enthusiasm.)

NOTICES OF FARMS.

Details of individual practice and management on different soils and in distinct localities, would present new ideas to many farmers and add to our existing knowledge of Canadian husbandry. I propose in this paper to give a sketch of the farm of R. N. Watts, Esq. Drummondville, in the Eastern Townships of Lower Canada.

The cleared portion, consisting of 200 acres, may be called in part a sandy loam and in part a sandy soil, chiefly covered in its primary state with pine and tamarack. From seven to ten dollars per acre are paid for clearing, that is, for underbrushing, chopping, logging, piling and burning. It may be proper to advert to the custom in the immediate vicinity of manufacturing salts from wood-ashes. Of these elm and ash make the best, fifteen or sixteen bushels of which yield a quintal of salts, for which twenty to twenty-four bushels of other kinds are required. Four quintals may be made from an acre. With ordinary apparatus a quintal worth three dollars may be made per day.

The rotation adopted is the following. First year oats, of which a second crop is occasionally taken. Second year potatoes or turnips with manure. Third year spring wheat seeded down with clover and timothy. Mow for three years and pasture before breaking up again. The clover grows in exuberance for two years, afterwards dies out, and leaves the timothy in its purity and perfection.

The buildings consist of three wings North, West, and South, with apartments for stables, harness' implements, waggon houses, cow-houses, youltry house, grain rooms, root cellar, sheep house, piggery, steaming apparatus, slaughtering &c. Stanchions are used for cows. Double stalls with cattle ties are preferable. The root cellar communicates with the byre between the cows heads. It consists of an apartment attached to the main building with the roof only above ground, upon which the snow can be easily retained. Another plan adopted here and generally followed in this severe climate, puts the root cellar below the threshing floor and adjoining mows, making the floor above dead with saw dust or tan-bark. Other requisites are dryness and ventilation.

Some of the best Short-horn Stock in Canada East is to be seen on this farm, mainly from the herd of Mr. Vail of Troy. The bull North Star out of Esterville by Meteor is a fine animal but sterile from some unknown cause. The cows Empress and Eunice are good milkers giving on grass twenty quarts per diem. The Durham short horn here as elsewhere resembles all other kinds in having inferior milkers; some of the best and some of the worst being of that breed. Interesting information in corroboration or subversion of the discovery of Mr. Guenon might be derived from an attentive observation of those features considered as indications of milking properties. How far breeders may find these remarks available as a guide remains an open question.

Full-blood Leicester sheep have been introduced. The County of Drummond Agricultural Society procured last year five rams, and five ewes from the flock of Mr. George Miller of Markham, C. W. who is well known as the most successful breeder of Leicesters in the Province. This farm is valued by the proprietor at twenty dollars per acre, sheep at eight dollars per head, but the market price would be about three. They shear about four pounds of washed wool. Six sheep are allowed in the field for a cow, and two acres for a cow's pasture. The proprietor in a letter in answer to a circular of the Lower Canada Agricultural Society, in the report published by order of the Legislative Assembly, represents sheep husbandry in his part of the country in a very unfavourable light. He says, "in Lower Canada, sheep, one year with another, are fed in winter quarters during six months of the year; allow one quarter of a ton of hay to each sheep for its winter food, which, on account of its being fed on the farm shall be valued at 20s. per ton, say:—

EXPENDITURE.

	£	s.	d.
One Fourth of a ton - - - - -	0	5	0
6 Bushels of Oats during winter - - - - -	0	7	6
Total - - - - -	0	12	6

RECEIPTS

	£	s.	d.
4 lbs. of wools, a liberal average 1s. 6d. - - - - -	0	6	0
Value of the lamb - - - - -	0	7	6
Total - - - - -	0	13	6

This shows a balance of one shilling on each sheep, to indemnify for losses of lambs and sheep, expense for summer grazing, keeping up fencing, attendance during the winter and lambing time, washing, shearing, interest on building, both for storing them and their fodder, I shall carry it out in figures for 100 sheep:—

	£	s.	d.
Attendance during the winter and lambing season - - - - -	3	0	0
Washing - - - - -	0	5	0
Shearing - - - - -	1	5	0
Pasture for Summer, 30 acres, at 5s. - - - - -	7	10	0
Fencing - - - - -	1	0	0
Expenses of buildings, &c. - - - - -	2	0	0
	15	0	0
Deduct the 1s. mentioned above on each sheep, 100 - - - - -	5	0	0
Balance, loss.	£10	0	0

I have made no allowance for manure, having taken that into consideration in valuing hay at four dollars per ton. This makes no allowance whatever for accidents of any kind, and supposes that each sheep rears its lamb."

Let us compare this with an estimate taken from Randall's sheep husbandry in the South, a work from which much information on that subject may be derived. The estimates are for the State of New York.

EXPENDITURE.		\$ cts.
100 sheep to interest on purchase money		14 00
To interest on 33½ acres of land at \$20 per acre.	- - - - -	46 66
" curing and storing hay.	- -	13 75
" expense of shearing	- -	4 00
" salt, tar, and summer care.	- -	4 00
" labour of foddering, &c. during winter, say	- - - - -	5 00
" loss by death, 2 per cent above the value of pulled wool.	- -	4 00
Total.	- - - - -	\$91 41
RECEIPTS.		
By 300 lbs. of Wool at 39 4-7 cts per lb.	-	118 71
80 lambs at \$1 per head.	- - -	80 00
40 two-horse loads of winter manure at 50 cents per load.	- - - - -	20 00
Summer manure, calling it only equal to shearing and summer care.	- -	8 00
Total	- - - - -	\$226 71
Balance	- -	135 30
Making the net profit of \$4 05, or 20¼ per cent per acre on lands worth \$20.		

The Scotch plough is preferred, and does its work equally well on cleared or stumpy land. A very useful and ingenious implement is used as a double-mould-board plough, potatoe lifter and scuffler, doing its work well in each operation. A curious and efficient turnip sower may also be seen. The cylinder in which the seed is deposited does not revolve but has a horizontal motion given to it by means of a projecting arm and roller which strike the spokes of the wheel as it moves round, thereby causing the seed to drop from a hole in the lower side of the cylinder. Straw, hay, and turnip cutters are also in use. A hay cart, which from its almost universal use here may be called French Canadian, seems admirably adapted for that particular object. Ten cwt of hay can easily be carried with one of these on an ordinary road.

Although this farm may be said to possess an inferior soil it produces under judicious management large returns of potatoes, carrots, turnips, hay, and oats, of which last, a sample of a variety called the *Poland*, sent to the London exhibition, weighed 52 lbs. per bushel.

A. K.

THE POTATO DISEASE.

The Legislature of Massachusetts, in the year 1851, offered a prize of \$10 000 to any one who should satisfy the Governor and Council that, by a test of at least five successive years, he had discovered a sure remedy for the potato rot. Several communications have been received on the subject, which are published by the authority of the legislature, of which we publish the following summary by Hon. Amasa Walker, Secretary of State:

Although these communications may not furnish any perfect cure for the potato disease, yet they agree in so many important points, and offer so many valuable hints, relating to the nature, cultivation, preservation, and improvement of the potato, that they cannot fail to be of great public utility. The similarity of views expressed by the most intelligent and experienced writers, relating to the nature, cultiva-

tion, disease, and cure of the potato, is truly remarkable, and we think auspicious. Among the principal points, relating to which there is a general concurrence, are the following:

Soundness and Vitality of the Seed.—Renewing the seed from the ball of healthy vigorous plants every few years, even restoring to the native place in South America, and taking the seed from the wild potato, is considered important. When potatoes are to be raised from the tuber, sound, healthy, whole potatoes are recommended for planting. Cutting potatoes is decidedly condemned. Anything which impairs the vitality of the seed increases the liability to disease.

Quality or kind of Soil.—A dry, light, loose, warm soil, is considered necessary to the soundness and health of the vegetable, as well as to its richness and flavour, the latter depending quite as much on the quality of soil as on the variety of seed. A wet, heavy, compact soil, directly promotes the disorder. Far upon the side of a mountain or hill is a favourable location for the growth of the potato; and new land contains more of the qualities requisite for its nourishment and health, than old or worn out soils.

Influence of Atmosphere.—Potatoes should be as little exposed to the air as conveniently may be. Their natural place is under ground. By too much exposure they become poisoned and turn green. Some recommended depositing them for the winter in holes under ground in a dry soil; or if kept in a cellar to preserve them dry, in small quantities, in sand; and to keep them cool. Keeping large quantities in a body in the cellar is by some supposed to promote heat and putrefaction. Planting in the fall is recommended by some, as potatoes left in the field over winter, are observed to come forward earlier in the spring, to grow more vigorously, to get ripe earlier and before the blighting rains in August, and to be more sound and healthy.

Manures.—All anti-putrescents, such as lime, wood shavings, pulverized charcoal, plaster, salt, nitrogen, &c. are believed to contribute directly to the health of the potato, as well as to add to its richness and flavor; and, of course, to prevent putrefaction and disease. Of other manures, well-rotted compost is preferred. Stable manure is too strong and heating, and produces ill-flavoured, unhealthy potatoes, and is decidedly condemned.

Disease, Contagion, Old Age, and Death.—These are common to vegetables as well as to animals. All are liable to disease, some more, some less, according to circumstances, predisposing causes, and preventive means. Some vegetable diseases are believed to be contagious. The present disease is thought by many to be of that class. One field of potatoes is liable to take the disorder from another field. Potatoes are predisposed to disease, by bad cultivation, old age, bad soil, bad manures, sudden changes of weather, warm rains, &c.

Ravages of Insects, Fungi, &c.—The best writers consider the ravages of insects as at most but a predisposing cause, rendering the potato plant more liable to disease by enfeebling the plant. By many writers insects are considered as remotely affecting the potato; by others as having no effect at all. The fungus on potatoes is not the cause of the rot. It finds the potato previously diseased, a fit subject for its operation.

The general conclusions to which the facts presented in these various communications seem to lead us, are:

1. That the disease has a striking resemblance to the cholera, and probably exists in the atmosphere.
2. That it is doubtful whether any specific cure has been, or ever will be discovered; but

3. As in cholera, certain preventives are well ascertained, by the application of which, the liabilities to disease may be greatly lessened.

4. That by obtaining the soundest seed, by planting in the most favourable soils, and by using the most suitable manures, we may have a good degree of confidence in the successful cultivation of this useful vegetable.

THE DEMANDS OF THE REAPING MACHINE.

The first demand of the reaping machine in harvest is level land, free from deep furrows, high ridges, and other unevennesses presenting obstacles to its successful working—such as inequality of draught to the horses; different lengths of crop, and hence its being laid in different directions by bad weather; and unequal resistance to the cutting apparatus, leaving a haggled stubble of unequal lengths.

If the horse draws at varying angles, the machine can never work well, even waiving the question of draught. On the other hand the least waste of moving power, or the application of the horse power in the most profitable manner, is certainly not the least interesting view of the question, since the severity of horse-labour is generally complained of. It is true that the construction of the machine is here involved; but whatever may be its construction, whether moved before the horses or behind them, borne on two wheels, as the American, or three as in the case of Mr. Mann's, going over furrows and ridges not only increases the amount of horse-labour, but otherwise tends to injure its working.

The second obstacle arises from a difference in the quality of the straw and its consequences. Generally, the crop is shorter in the furrow immediately on either side than at the middle of the ridge. In the furrow this generally arises from a less depth of soil; at the centre of the ridge as often from improper manuring as an extra depth of soil; for in laying out the ridge, an open furrow is left into which twice the quantity of manure is turned. There is also generally a finer mould at the middle than half-way from it to the furrow; hence, a finer and closer braird. Now, the effect of all this at harvest is obvious; for at this period we see in all the furrows, it may be, standing corn, while along the centre of the ridge it is completely laid; or if the whole ridge is laid, then how often do we find the corn parting from the middle of the ridge to the furrows, like the hair on one's head, from the crown to either side; a state of things principally resulting from improper culture, and presenting obstacles to the reaping machine almost insurmountable.

It is very obvious, therefore, that to prepare the ground for the working of the reaping machine in the most successful manner, furrow draining or under draining must be carried out to a greater degree of perfection than has yet been attained generally speaking; for without this a perfectly level surface, or surface in one plain, is impracticable, and unless we have such a surface, uniformity of tilth, of fertility, of quality of the crop, and of exposure to the influence of

the weather, cannot be obtained. If we could suppose these conditions obtained, then the whole of the crop if laid at all, would be laid in one direction; and being laid thus, it would not be that complete obstacle to the reaping machine which is now found in every instance of laid corn.

The ingenuity of our implement makers has gone far already to remove the third obstacle from before the reaping machine; but in crossing furrows obliquely it cannot be wholly overcome. The sounder view of the question obviously is to do away with open furrows, instead of making machinery to cut the corn imperfectly out of them.

The reaping machine also demands large open fields, with low fences of equal height; for when fields are small they occasion a greater waste of horse-labour in turning, besides less or more damage to the crop, while the crop is more liable to be irregularly laid and twisted about in bad weather than in large open fields; and this latter result will be increased by trees standing in fields or hedge-rows, by over-grown hedges, low at one place and high at another, with gaps at every short interval, for such give rise to eddies with all their consequences. In many wooded districts it would no doubt be difficult to comply with this request, owing to their subdivision. But, at all events, if we cannot make things better than they naturally would be, we certainly ought not to make them worse, which we do by making high ridges, deep furrows, improper fences, and by unequal manuring, &c., as has already been shown.

The next demand of the reaping machine brings us to the harvest field, where special hands will always be required to work it, as is the case with sowing, threshing, and chaff-cutting machines; and where the different manipulations are equally difficult to learn, and hence will require similar attention. For instance, he who can manage the rake of Hussey's machine may never become a good driver, the latter requiring a control over horses which very few of our ordinary ploughmen exhibit, besides a knowledge of the state of the crop, and of the action of the machine under different circumstances. The idea of driving the horses at an equal pace, or even of taking an equal breadth of the crop, without regard to the state of the crop, and the ability of the man at the rake, is just as absurd as it would be for a mower to talk of going over the ground in the same manner with his scythe; and to take due notice of all these particulars is not so easy a task as many, we fear, have imagined during the bygone harvest, although it is one which must be performed before success can be approximated.

Such is the position of the reaping machine in seed-time and harvest, and it will readily be perceived that the latter must not be lost sight of during the former, and hence our present outlook in preparing the ground for seed.—*Agricultural Gazette.*

Agricultural Census of Canada for 1851.

We are indebted to the Correspondent of the Montreal Herald for an abstract of the Agricultural census of Upper Canada for 1851, which we present in the following comparative form, that the Agricultural operations of both Provinces may be more easily considered. The returns have not yet been classified and brought down to the House; but the following statistics may be relied on:—

Comparative Statement of Crops; Occupiers of Land, and Cultivation in Upper and Lower Canada.

	UPPER CANADA.	LOWER CANADA.
	Quantity.	Quantity.
	Acres.	Acres.
Lands occupied.....	9,823,233	8,113,915
“ Cultivated....	3,697,724	3,603,317
“ Cropped.....	2,274,586	2,072,953
Pasture.....	1,364,649	1,502,355
Gardens.....	55,489	30,209
Wild Lands.....	6,125,509	4,508,398
Acres in Wheat.....	782,115	427,111

OCCUPIERS IN UPPER CANADA.

Total occupiers in U. C.	99,860
Over 200 acres each.....	3,080
100 to 200 “.....	18,421
50 to 100 “.....	48,027
20 to 50 “.....	18,467
10 to 20 “.....	1,889
10 and under “.....	9,976

CROPS IN UPPER CANADA AND LOWER CANADA.

	Acres.	Bushels.	Average.
Wheat.....U. C.	782,115	12,692,852	14.90
“.....L. C.	427,111	3,075,868	7.20
Barley.....U. C.	29,916	625,875	20.98
“.....L. C.	42,927	668,626	15.00
Rye.....U. C.	38,968	479,651	12.34
“.....L. C.	46,007	341,443	7.87
Peas.....U. C.	192,109	2,873,394	14.90
“.....L. C.	165,192	1,182,190	7.16
Oats.....U. C.	421,684	11,193,844	26.54
“.....L. C.	590,422	8,967,594	15.00
Buckwheat. U. C.	44,265	639,384	14.51
“.....L. C.	51,781	530,417	10.24
Indian Corn U. C.	70,571	1,696,513	24.05
“.....L. C.	22,669	400,287	17.60
Potatoes....U. C.	77,672	4,981,475	64.00
“.....L. C.	73,224	4,456,111	60.08
Turnips....U. C.	17,135	3,644,942	212.00
“.....L. C.	3,897	369,909	95.00

The following is returned as the gross produce in all other crops:—

	Upper Canada.	Lower Canada.
Grass Seeds.....Bush.	42,460	18,921
Carrots.....“	174,895	82,338
Mangel Wurtzel.....“	54,226	103,999
Beans.....“	18,109	26,302
Hay.....Tons	681,782	965,653
Butter.....Lbs.	15,976,315	9,637,152
Hops.....“	113,064	111,158
Cheese.....“	2,226,776	511,054
Flax and Hemp.....“	50,654	1,867,016
Tobacco.....“	764,476	488,652
Wool.....“	2,699,964	1,430,976
Maple Sugar.....“	3,581,505	6,190,694

MANUFACTURES.

Fulled Cloth.....Y'ds	527,466	780,891
Linen.....“	14,955	889,528
Flannel.....“	1,169,301	860,850

CATTLE AND NEAT STOCK.

Bulls, &c.....Head	193,982	111,819
Milch Cows.....“	296,924	294,514
Calves and Heifers.....“	254,988	180,317
Horses.....“	203,300	236,827
Sheep.....“	968,022	629,827
Pigs.....“	569,237	256,219

It must be remembered that throughout the greater part of Lower Canada, the acres are arpents, and the bushels minots. An *arpent* is about one-seventh less than an acre; and a *minot* about one-eighth more than a bushel. The County which possesses the largest number of occupied acres is York, with 390,525; the same County has likewise the largest number of acres in wheat, viz: 50,147, producing 991,608 bushels. The smallest number of acres in wheat is in the County of Bruce, where only 489 acres are cultivated for this crop; but as these acres produce 9,496 bushels, or an average of 20 30-100 bushels per acre, Bruce has the honour of being by a trifle the most fertile wheat county in the Province. York comes next, with an average of 19 71-100 bushels per acre; and Brant, Durham, Halton, Huron, Oxford, Stormont and Wentworth, all show a product within a fraction more or less of nineteen bushels to the acre. The County which exhibits the smallest average per acre is Lennox, with 5,046 acres producing 30,281 bushels—little more than 6 bushels to the acre. The average for the whole of Upper Canada is 14 90-100 bushels per acre.

The County in L. C. which possesses the largest quantity of cultivated land is Dorchester, with 479,712 acres; and that with the greatest quantity in wheat is Huntingdon, with 40,229 acres, and 241,171 bushels. The smallest number of cultivated acres are in Gaspé, viz:—92,210; producing also the smallest quantity of wheat, or 641 acres, and 3,418 bushels. Stanstead grows most wheat to the acre of any County of Lower Canada, having 4,851 acres in wheat, and 62,882 bushels=12.96-100 bushels per acre. The County producing the smallest quantity per acre is L'Islet, from which the return is 15,531 acres—67,912 bushels, or 4 38-100 bushels per acre. After Stanstead, Missisquoi and Sherbrooke, are the most fertile counties in wheat; both producing more than 12 50-100 bushels per acre.

It will thus be seen that the difference between Upper and Lower Canada, as regards the growth of wheat, in the two best wheat counties, is as 20 to 13; and in the counties having the lowest average, as 6 to 4.

THE NAMING OF CATTLE.

To the Editor of the Canadian Agriculturist:—

DEAR SIR,—As a difference of opinion exists as to what is the true meaning of “A Heifer,” I am instructed to request that you will notice the subject in your next number of the *Canadian Agriculturist*.

At the Show held on the 12th inst., at Thorold, one of our Vice-Presidents entered, under the head “Two year old Heifers,” an animal on that Class with a calf at her heels, and the Judges would have given her the First Prize, with the reservation whether the rules of the Society

would admit her (having had a calf,) under that head. The Officers and Directors in my opinion very properly rejected her, considering her a cow; but, Sir, on my return home I consulted the dictionary, and what do I find there?—"Heifer: [heah-pope, heah-fore—Saxon,] a young cow."—POPE. "Cow: [in the plural, anciently *kine* or *keen*, now commonly *Cows*:—Cu, Saxon,] the female of the bull."—BACON.

Yours very truly,
JOHN RADCLIFF,
Pres. Agri. Society, United Counties,
Lincoln and Welland.

REMARKS.

The term "Heifer" is too indefinite to meet some cases that may arise at Cattle Shows, and the exact age of the animal should, in all cases, be given. In England, Heifers usually bear a calf at about 2½ years old, when they cease to be called by that name, and are denominated cows: but there are exceptions to this, in different parts of the country. Stephens, in his *Book of the Farm*, says in reference to the naming of live stock at different ages:—"The term 'Calf' is applied to all young cattle, until they attain a year old, when they are called *year olds* or *yearlings*, saying *year old bull*, *year old quey* or *heifer*. In another year they are named *two years-old bull*, *two years old quey* or *heifer*. In England females are called *stirks* from calves to *two years old*, and the males *steers*. The next year they are called *three years old bulls*; females, in England, from two to three years old, *heifers*; in Scotland *three years old queys*; and when they are kept for breeding, and bear a calf at that age, they get the name of *cows*, the same as in England, and the males *three years old stuts* or *steers*. Next year the *bulls* are *aged*, the *cows* retain that name ever after, and the *stuts* or *steers* are *oxen*, which they continue to be to any age they are kept."

In the case mentioned by our correspondent, the animal in question, having a calf by her side, would be considered a *cow*, in the common parlance of the country.

IMPROVEMENT IN SHINGLE MAHINES.

Simon Ingersoll, of New York city, has taken measures to secure a patent for an improvement in shingle machines. The shingles are cut from the blocks and they receive the requisite bevel at one operation. There is a frame which has a rectilinear motion, and has a knife on its upper board which cuts or splits a strip from the under surface of the block; the said strip, after being cut from the block, is thrown by means of a clasp acted upon by a spring, on the lower board of the frame; it then passes under a stationary cutter which gives the aforesaid strip the required bevel, forming it into a shingle.—*Scientific American*.

POPULATION OF UPPER AND LOWER CANADA
ACCORDING TO RETURNS.

UPPER CANADA.

Counties, Towns and Villages.	Population.	Total.
Addington—County	14465	
Bath—Village, about	700	
		15165
Brant—County	19659	
Brantford—Town	3877	
Paris—Village	1890	
		25426
Bruce—County	2837	
Carleton— "	23202	
Bytown—Town	7760	
Richmond—Village	434	
		31397
Dundas—County	13811	
Durham—County	28256	
Port Hope	2476	
		30732
Elgin—County	24144	
St. Thomas	1274	
		25418
Essex—County .....	.....
Sandwich—Town ..	14973	
Ambertsburgh—Town ..	1880	
		16817
Frontenac—County	19150	
Kingston—City	11585	
		30735
Grey—County	13217	
Glengary—County,	17596	
Grenville— "	18551	
Prescott—Town	2156	
		20707
Haldimand—County	18788	
Halton—County	18322	
Hastings	27408	
Belleville—Town	4569	
		31977
Huron—County	17869	
Goderich—Town	1329	
		19198
Kent—County	15399	
Chatham—Town	2070	
		17469
Lambton—County	10815	
Lanark—County	25401	
Perth—Town	1916	
		27317
Leeds—County	27034	
Brockville—Town	3246	
		30208
Lennox—County	7955	
Lincoln—County	16160	
Niagara—Town	3340	
St. Catharines	4368	
		23868
Middlesex—County	32864	
London—Town	7035	
		39899
Northumberland—County	27358	
Cobourg—Town	3871	
		31229
Norfolk—County	19829	
Simcoe—Town	1452	
		21281

Ontario—County	29434
Oshawa—Village	1141
.....	30576
Oxford—County	29336
Woodstock—Town	2112
Ingersol—Village	1190
.....	32638
Peel—County	24816
Perth—County	15545
Peterboro—County	17046
Peterboro—Town	2191
.....	15246
Prescott—County	10487
Prince Edward—County	17318
Picton—Town	1569
.....	18887
Renfrew—County	9415
Russell—County	2870
Simcoe—County	26158
Barrie—Town	1007
.....	27165
Stormont—County	12997
Cornwall—Town	1646
.....	14643
Victoria—County	11657
Waterloo—County	23109
Preston—Village	1180
Galt—Village	2248
.....	26537
Wellington—County	24936
Guelph—Town	1860
.....	26796
Welland—County	17857
Chippawa—Village	1193
Thorold—Village	1091
.....	2 014
Wentworth—County	24990
Hamilton—City	14112
Dundas—Town	3517
.....	42619
York—County	48944
Toronto—City	30775
.....	79719
.....	952004

LOWER CANADA.

Counties, Towns and Villages.	Population	Total.
Beauharnois—County,	38660	
Huntingdon—Village,	679	
Beauharnois— “	874	
.....	40213	
Bellechasse—County,	17732	
Berthier en bas—Village, about	250	
.....	17982	
Berthier—County,	33008	
Berthier en haut—Village, about,	1600	
.....	34608	
Bonaventure—County,	10844	
Carleton—Village,		
New Carlisle— “		
New Richmond—Village		
Chambly—County,	14981	
Chambly,	884	
Longueuil,	1496	
St. Johns,	3215	
.....	20576	

Champlain—County,	13146
Batiscan—Village, about	750
.....	13896
Dorchester—County	43105
Drummond,	16562
Drummondville—Village	
Durham,	
Kingsey,	
Gaspe—County,	10904
Huntingdon—County,	38888
Laprairie—Village,	1757
.....	40645
Kamouraska—County,	20396
Leinster— “	28606
L'Assomption,	1084
.....	29690
L'Islet—County,	18420
Montmagny—Village,	1221
.....	19641
Lotbiniere—County,	16567
Megantic— “	13835
Mississquoi— “	13015
Phillipsburg—Village, ...	469
.....	13484
Montmorenci—County	9598
Montreal—County,	17596
Montreal—City	57715
Lachine—Village,	1075
Cote St. Louis—Village	995
.....	77381
Nicolet—County,	19657
Nicolet—Village,	
Ottawa—County,	21734
Aylmer—Village	1169
Hull— “	22903
Portneuf—County,	19366
Quebec— “	19474
Quebec—City,	42052
.....	61526
Richelieu—County,	21720
St. Ours—Village,	542
Sorel,	3424
.....	25686
Rouville—County,	27031
Rimouski— “	25887
Fraserville—Village,	995
.....	26882
Saguenay—County,	20783
St. Maurice— “	22626
Three Rivers—Town,	4936
.....	27562
St. Hyacinthe—County,	27310
St. Hyacinthe—Town,	3313
.....	30623
Sherbrooke—County,	17016
Sherbrooke—Town,	2998
.....	20014
Shefford—County,	16482
Stanstead— “	13898
Terrebonne— “	25662
St. Therese—Village	1129
.....	26791
Two Mountains—County,	29686
St. Eustache—Village,	784
.....	3470
Vaudreuil—County,	20986
Vaudreuil—Village,	443
.....	21429
Vercheres—County,	14393
Yamaska—County,	14748
.....	890261

Origins.		Lower Canada.	Upper Canada.	Total.
Natives of	England and Wales,.....	11230	82699	93929
	Scotland,	14565	75811	90376
	Ireland,	51499	176267	227766
	Canada, French origin...	669528	26417	695945
	" not of French } origin..... }	125580	526093	651673
	United States,	12482	43732	56214
	Nova Scotia and P. E.,...	474	3785	4259
	New Brunswick	480	2634	3114
	Newfoundland	51	79	130
	West Indies	47	345	392
	East Indies	4	106	110
	Germany and Holland,...	159	9957	10116
	France and Belgium....	359	1007	1366
	Italy and Greece	28	15	43
	Spain and Portugal.....	18	57	75
	Sweden and Norway....	12	29	41
	Russia, Poland & Prussia,.	8	188	196
	Switzerland	38	209	247
	Austria and Hungary....	2	11	13
	Guernsey,	118	24	142
	Jersey and other British } Islands..... }	293	131	424
	Other places	830	1351	2181
Born at Sea.....		10	168	178
Birth place not known.....		2446	889	3335
Total Population		890261	952004	1842265

Religions.	Lower Canada.	Upper Canada.	Total.
Church of England.....	45402	223190	268592
" Scotland.....	4147	57542	61589
" Rome	74866	167695	914561
Free Presbyterian Church...	267	65807	66074
Other Presbyterians	29221	80799	110020
Wesleyan Methodists	5799	96640	102439
Episcopal "	7	43884	43891
New Connexion "	3442	7547	10989
Other "	11935	59585	71520
Baptists.	4493	45353	49846
Lutherans	18	12089	12107
Congregationalists	3927	7747	11674
Quakers	163	7460	7423
Bible Christians	16	5726	5742
Christian Church	10	4093	4103
Second Adventists.....	1369	663	2032
Protestants	10475	1733	12208
Disciples. ....	.....	2064	2064
Jews.....	348	103	351
Menonists and Tunkers.....	.....	8230	8230
Universalists	3450	2684	6134
Unitarians	349	834	1183
Mormons	12	247	.....
Creed not known.....	390	6744	842265
No Creed given.....	4521	35740	40261
All other Creeds not classed.	13834	7805	21639
Total population.....	890261	951004	404163

MISCELLANY.

THE BRANCH OF WILD HOPS THAT GREW
OVER THE STREAM.

I love the bright tints of the rich summer rose
As it petals unfold to the sun,
What flowret a fragrance so sweet can disclose,
As that of this loveliest one!
The lily and cowslip were friends of my youth,
And daisies—a glittering store—
They taught lessons of purity, sweetness, and truth,
And I feel that I love them the more;
But the fairest of all in my memory's dream,
Is the branch of wild hops that grew over the stream
I remember the time, it is long since gone by,
When I sought out the shadiest spot.
The beauties of summer were faded, and I
Was sad—for the blue-bells were not;
And I longed for a wreath to entwine in my hair,
But no favourite bud could I see,
Till my eye caught a branch that was streaming in air
From the stem of the sycamore tree,
And my garland was formed of its pale yellow beam—
'Twas the bunch of wild hops that grew over the stream.

Since then I have wandered by streamlet and fell,
'Mid scenes that were lovely and new,
With friends that I love and who love me as well;
But they're not so dear to my view
As my own native Kent with its turf growing wild
The home of the blue-fly and bee,
Where gaily I frolicked, a mirth-loving child,
In the shade of my favourite tree;
And I long to be twining its beautiful frame
With the branch of wild hops that grows over the stream.

A VOICE FROM HAMPSHIRE.

ANASTATIC PRINTING.

Considerable interest was manifested in London a few years ago by the discovery of a process, of multiplying or reproducing indefinitely, fac-similes of documents or engravings, however, elaborate, and likely from its cheapness entirely to supersede lithography. The discovery was made by Mr. Rudolph Appel, a native of Silesia, eight or nine years ago, and termed by him Anastatic Printing. Mr. Appel went to England to push his fortune, but not having patented his invention it soon became public property. Some slight failures in the process, perhaps from this very cause, that the parties who had appropriated the invention had not learned all the secret, caused the discovery to be looked upon as a little theoretical. At the Great Exhibition in 1851, however, a prize was awarded to the Inventor, and since then public attention has again been drawn to the process; not only on account of its merits; but also on account of its dangerous nature, if not strictly guarded against. Copies of cheques and Bank notes may be taken by this invention so correctly as to defy the closest scrutiny, and bankers have been deceived again and again, when examining notes and cheques forged by this resurrection process. Messrs. Glynn and Appel have, however, manufactured and patented a paper for preventing forgery by the Anastatic Press. In order that some idea may be formed of the difficulty to be overcome, we will subjoin from the *Art Journal* a very comprehensive account of the actual operation of Anastatic printing:

"The print of which an Anastatic copy is required is first moistened with very dilute nitric acid—one part of acid to seven of water—and then being placed between bibulous paper, all superabundance of moisture is removed. You will easily understand that the acid being an aqueous solution will not have attached itself to the ink on the paper; printer's ink being of an oily nature, and if the paper thus prepared be placed on a polished sheet of zinc and subjected to pressure, two results will follow.

In the first place the printed portion will leave a set off or impression on the zinc, and secondly the nitric acid attached to the non-printed parts of the paper will eat away and corrode the zinc, converting the whole, in fact, into a very shallow stereotype. The original being removed—perfectly uninjured—the whole zinc plate should next be smeared with gum water, which of course will not stick to the printed or oily part, but will attach itself to every other portion of the plate.

A charge of Printers' ink being now applied, this in its turn only attaches itself to the set off obtained from the print.

The final process, consists in pouring over the plate a solution of phosphatic acid which acts on the non-printed portion of the zinc, and produces a surface to which printers' ink will not attach. The process is now complete and from such a prepared zinc plate any number of impressions may be struck off.

The uses to which this ingenious invention may be applied are various, for instance, copies of rare prints may be obtained without the aid of an Engraver. Reproductions of books, or works out of print, may be had without setting up the type; authors may illustrate their own works and fac-similes of pen-and-ink sketches may be had at very inconsiderable expense."

It may be seen from this description that without some safe guard, forgery upon a large scale could be easily effected. The antidote is offered by the patent paper invented by Messrs. Glynn & Appel. It is as beautiful from its simplicity, as it is efficacious in its operation. It consists merely in impregnating or dyeing the pulp of which the paper is made with an insoluble salt of copper. After a series of experiments, the patentees preferred phosphate of copper to any other salt, and for this purpose sulphate of copper, and phosphate of soda are successively mixed with the pulp, which produce an insoluble salt, the phosphate of copper. Besides this a very small portion of a peculiar oily and non-drying soap is introduced, which affords a double protection.

The result of the copper being introduced into the paper is, that should a forger attempt to submit a note or cheque printed on this patent paper to the Anastatic process, wetting it, as previously described, with dilute nitric acid, and subjecting it to pressure on a zinc plate, a film of metallic copper is immediately deposited between the cheque and the zinc, not only preventing the set-off, or transfer of the impression, but cementing the paper so firmly to the zinc that it can only be separated by being destroyed.—Thus the forger is punished by losing his note, the public is protected, and the banker benefitted. Hitherto the safety of the banker has been in the elaborate engraving of the notes used, so that no one except a skilled engraver, could give a correct fac-simile, and such an engraver is not likely to attempt a forgery for the sake of the money to be derived from his labours, so that the work is entrusted to reckless but it may be expert hands, and this leads to the detection of the offence. It is different, however, with the Anastatic process, for any one who understands lithographic printing, may with the aid of a zinc plate, a little nitric acid, and a press, produce so perfect fac-similes of notes and cheques as to defy scrutiny.—*Family Herald*.

The web of life in order to produce good measure should be woven in the loom of virtue.

The publishers of a paper in Iowa give as an excuse for want of reading matter, that one of the editors got whipped at a horse-race, and the other was on a spree.

THE EMPIRE OF JAPAN.

When Paul stood in the midst of the Court of the Areopagus he said, "God hath made of one blood all nations of men to dwell on all the face of the earth," but how very impure must that blood, in the lapse of ages have become, that the varied impulses which are warmed by its radiant circulation are so diametrically opposed to each other, that the most transient approximation produces only jarring and strife. Not only has mankind lost all ties of family relationship and of a community of interest; but feelings the most rancorous, passions the most destructive, have supplied their place. The fact is that humanity manifests itself in so many varied aspects that we are frequently tempted to imagine that mankind cannot have sprung from one common stock, or that our great progenitor listened in lonely majesty to the minstrelsy of paradise, or was cheered and refreshed by the ambrosial fruit which clustered so profusely on the heavy laden boughs. Yet as we can in some measure account for, and reconcile with, this standard, the diversities which exist among ourselves, we are satisfied that if we had the means and appliances to enable us to enquire narrowly into the discrepancies that exist in more remote circles of life, we would find that they were all brought about by the recurrence of events set in motion by the pride or the covetousness of man. We need not wander far for an abundance of illustrations to shew the correctness of these remarks, but in obedience to the ideas which suggested them, we will turn our steps to the Empire of Japan.—Here we have humanity in its two aspects,—the natural and the unnatural—as fully developed as it can be, by the wildest and most barbarous Indian tribe that may be encountered. At the present moment the laws of that empire are so cruel, "that no Japanese ship or boat, or any native of Japan, shall presume to quit the country under pain of forfeiture and death; that any Japanese returning from a foreign country shall be put to death; that whosoever presumes to intercede for offenders shall be put to death;" and these barbarous laws have been in existence since 1637. The insular Empire of Japan is about 1200 miles in breadth containing a population estimated at 30,000,000. On the North it has the sea of Ochotsk, on the east and south the Pacific ocean, and on the west the sea of Japan.

The illustrious Venetian traveller Marco Polo thus describes it under a Chinese name:—"Zipangu" he says, "is an island in the Eastern Ocean situated at the distance of about fifteen hundred miles from the main land or coast of Manji. It is of considerable size; its inhabitants have fair complexions, are well made, and are civilized in their manners. Their religion is the worship of idols. They are independent of every foreign power, and governed only by their kings. They have gold in the greatest abundance, its sources being inexhaustible. To this circumstance we are to attribute the extraordinary richness of the sovereign's palace, according to what we are told by those who have had access to the place. The entire roof is covered with a plating of gold in the same manner as we cover houses, or more properly churches with lead. The ceilings of the halls are of the same precious metal, and many of the apartments have small tables of pure gold considerably thick; and the windows also have golden ornaments." Such is the account given by Marco Polo, but the empire consists of an unknown number of Islands, all clustered together between Corea and Kamschatka, and separated from the continent of Asia by the sea of Japan. Japan proper consists of three large islands, Kiiosoo or Kewsew, Sitkokf, and Nippon. Kiiosoo, the most western is about 200 miles long, with an average breadth of 80 miles. Sitkokf may

be 150 miles long by about 70 miles, and Nippon, the largest and principal island is upwards of 900 miles in length and more than 100 miles of average width. The Empire is guarded by dangerous shores and by stormy seas as well as by the jealousy of its government and the severity of its laws. But it was not always so in Japan. The finer feelings of our nature had at one time free scope there as in other places, and the ear was not always deaf to the cry of distress. With the exception of the mention made of the country by Marco Polo in the end of the thirteenth century the islands of Japan were unknown to the European world till 1542, when a Portuguese ship, bound for Macao in China, was driven from her course and forced by the storm to take shelter in the harbor of one of these islands. The Portuguese were received with courtesy and kindness. The first two of them who set foot on shore on this unknown land were named Antonio Mota, and Francesco Zei moto. The Japanese have preserved portraits of them. From this accidental circumstance, a regular trade was opened up and a Portuguese ship, laden with woollen cloth, furs, manufactured silks, taffetas, and other commodities in request, was sent once a year to the same island. The Portuguese were thus the first Europeans who had any commercial dealings with the Japanese, and about eight years after the discovery, Francesco Xavier joint founder with Loyola of the order of the Jesuits, and some other Jesuit padres embarked for that new territory as missionaries. The faith prevailing at that time was said to be of Brahminical origin. Xavier quitted Japan for China in 1551, and died on the 2nd December of the following year at Shan-Shan on the Canton River, not far from Macao. The labors were, however, kept up for many years, until at length the native priests were roused into vigorous opposition, and so prevailed with the Government as to procure a proclamation forbidding under pain of death the practice or profession of the Portuguese religion. As yet no Englishman had set foot on the Japanese soil, but in the years 1591 William Adams, a warm hearted genuine, unsophisticated, Englishman hired himself for chief pilot of a fleet of five sail of Hollanders, made ready by the chief of their Indian Company. The fleet set sail from the Texel on the 24th of June, and after serious calamities they reached the Straits of Magellan, where they wintered. Having again set sail, and suffered a variety of encounters, the ships lost sight of each other and never again met. Of the five ships that left Holland only one remained, yet they did not give up to despair, but determined to direct their course for Japan as they had learned from one Dirreck Gerritson, who had been there with the Portugals, that woollen cloth was of great estimation in that island. On the 12th of April, 1600, they came close to Bungo on the island of Kiosoo. Here for the present we will leave the good English pilot having first recorded the account which he gave of himself. "Your Worships shall understand that I am a Kentish man, born in a town called Gillingham, two English miles from Rochester, and one mile from Chatham, where the Queen's ships do lie; and that, from the age of twelve years I was brought up in Limehouse, near London, being 'prentice twelve years to one master, Nicholas Diggins and have served in the place of master and pilot in her Majesty's ships, and about eleven or twelve years served the worshipful company of the Barbary merchants until the Indian traffic from Holland began, in which Indian traffic I was desirous to make a little experience of the small knowledge which God had given me."

Four bags of apples were stolen lately from the orchard of Mr. Toshock of Ramsay. He can do without the apples but he would like the bags back. A word to the wise is enough.

POULTRY REMEDY.—About six weeks ago one of my hens became ill, and lost the use of one of its legs. I was told over laying was the cause of the malady, and was recommended to give her a few pepper-corns and a little bread soaked in ale, which was forced down her throat. In a few hours the bird was walking the yard; however, in a couple of days she had a relapse, when the same dose was administered, and she was separated from her companions for forty-eight hours, when she quite recovered, and has had no return of the complaint, and produces her fair number of eggs per week. This may be a useful hint to amateurs, as I was informed by a poultry-fancier of some experience that my hen would die.

FOR YOUNG CATTLE AND HORSES.—Mix occasionally one part of salt with four parts of wood ashes, and give the mixture to different kinds of stock, summer and winter. It promotes their appetites and tends to keep them in a healthy condition. It is said to be good against botts in horses, murrain in cattle, and rot in sheep

Obituary.

PROFESSOR NORTON.

With the deepest sorrow we announce the decease of this distinguished and promising scientific Agriculturist, who has been, according to human judgment, prematurely cut off in the midst of his usefulness.—In the demise of Norton and Downing this continent has lost two of its most able and successful cultivators of the important and attractive arts of Agriculture and Gardening, whose places will not be readily supplied.

Professor Norton had enjoyed the great advantage of studying under such able chemists as Professor Johnston, in England, with whom he continued on terms of the most friendly intimacy, and Professor Mulder, of Holland; and distinguished himself for patient and original research in completing a series of analyses of the Oat, for which, the Highland Society awarded a premium of Fifty Pounds. His excellent little treatise on Scientific Agriculture, for which he received a liberal prize from the New York State Agricultural Society, is well known and appreciated; while his Notes to the American Edition of Stephen's great work, the Book of the Farm, or, as it is called on this side the Atlantic, "*The Farmer's Guide*," display an intimate acquaintance with practical as well as Scientific Agriculture that must render that truly able and original work, of still greater usefulness to American farmers. He was likewise a frequent contributor to the *Albany Cultivator*, and occasionally to other periodicals of a similar character. Mr. Norton filled the Chair of Scientific Agriculture in Yale College, and took a warm interest in the establishment of a University in Albany, in which Agriculture should hold its rightful position. Over exertion seems to have developed that insidious destroyer—consumption, which rapidly hurried him to the grave at the early age of 30 years, but not till he had laid a solid foundation of substantial learning, and acquired for his sterling integrity and moral worth, the profound respect of all who knew him.—Truly, the memory of the wise and virtuous is blest.

ROBERT HOPE, ESQUIRE.

Mr. Robert Hope, the Scotch agriculturist, died a short time since at an advanced age. For upwards of half a century he has been tenant of the farm of

Penton Barns, East-Lothian, and held a prominent position in connection with Scottish agriculture. He succeeded his father in the same farm, and was early noted as a skilful and intelligent cultivator, and as one of the pioneers in those improvements in the agriculture of Scotland, which East-Lothian may be said to have begun first and carried farthest. In early life Mr. Hope was a contributor to "The Farmer's Magazine," and to the works published by Sir John Sinclair. Almost the last article of any length which he wrote was the General Observations on the County of Haddington in the New Statistical Account of Scotland, where he graphically describes the changes witnessed in his life-time. He states that he remembered when the public roads in his neighbourhood, particularly the one along the coast to North Berwick, were without metal, and ploughed up every summer to lessen the inequalities, and to remove the water, the condition of the agricultural districts being at that time as primitive as the roads; and he lived to see the best of roads intersecting a country cultivated like a garden, and a railway passing his own fields, carrying to market in tons, in a few minutes, the produce which he used to see conveyed on horseback or by sea. "Mr. Hope's reputation as an agriculturist, and as a man of general intelligence and probity," says the *Scotsman*, "being more than local, he was one of the Scotch farmers selected to give evidence before the Parliamentary committee on agricultural distress in 1836, and his evidence then given is very remarkable for fulness of information and clearness of statement, not only regarding questions purely agricultural, but on the Scottish system and other topics. In personal qualities—in gentleness, benevolence, kindness, and the strictest and most sensitive integrity—Mr. Hope stood very high and he enjoyed throughout life the respect and affection of his neighbours of all ranks and opinions. As a master, he was remarkable for his careful study not only of the interests and comforts, but of the feelings of those he employed."

EDITOR'S NOTICES.

TO OUR SUBSCRIBERS.—The delay in the publication of the present number of the *Agriculturist*, has been occasioned by unavoidable circumstances, among them may be mentioned our having to wait for the paper being manufactured.

THE OHIO STATE AGRICULTURAL SOCIETY held its annual Exhibition at Cleveland, the latter end of September, and was eminently successful. The number of visitors was very large, and the whole affair seems to have been strongly impressed with the attribute of *progress*.

THE NEW YORK STATE FAIR held at Utica, in September, although not quite so numerously attended as on former occasions, went off exceedingly well, affording indisputable evidence of the healthy progress which that Empire State continues to make in the first and most important of all arts. The agriculture of this continent is largely indebted for the impetus that has been given it, to the exertions and example of this enlightened and influential Society.

THE GREAT EXHIBITION OF NEW BRUNSWICK was held at Fredericton in the middle of October and continued four days. It appears to have been quite a splendid affair, and we heartily congratulate our fellow colonists on the complete success of their patriotic enterprise. An interesting report has been sent us as printed in "The Head Quarters," to which we hope hereafter more specially to refer, than either time or space will at present permit.

MR. PARSONS' LETTER, with one or two other communications, to be found in the present number, were unavoidably crowded out of our last, to make room for the report and premium list of the Exhibition.

TRANSACTIONS OF THE WISCONSIN STATE AGRICULTURAL SOCIETY, Vol. 1, 1851.

We are indebted to the courtesy of Mr. Bank, Secretary of the Society, for this interesting octavo volume, consisting of upwards of 300 pages. A document of this sort is highly creditable to the Society from which it emanates, and affords indisputable proof of the rapid progress of civilization in the great West; we will refer more particularly to this publication hereafter.

JOURNAL OF THE NEW BRUNSWICK SOCIETY FOR THE ENCOURAGEMENT OF AGRICULTURE, HOME MANUFACTURES, AND COMMERCE, Part 3rd: Fredericton, N. B. 1852.

Dr. Robb, the able Secretary of this Society, will please accept our thanks for the third part of this Journal, which contains several valuable papers and much pleasing information relative to the capabilities and progress of our sister Province. Some of these matters we intend referring to when we have space, in the mean time, we shall feel additionally obliged to the courteous Secretary for parts 1st and 2nd.

SCOBIE'S CANADIAN ALMANAC AND REPOSITORY OF USEFUL KNOWLEDGE, for 1853, Toronto: Hugh Scobie.

This valuable publication continues to maintain the high character it has earned in previous years, for accuracy and general usefulness. To the man or business it is essential, and the immense mass of information which it contains entitles it to a place in every family of the Province. Nearly one hundred pages of closely printed matter, most of which must have been collected at great labour and expense, with a neatly engraved map, for the small sum of seven pence half-penny, cannot be otherwise regarded than as a miracle of cheapness, and highly creditable to the enterprising spirit of the indefatigable publisher.

"THE CANADIAN JOURNAL," Monthly.—Toronto: H. Scobie.

This periodical is of a much higher character, both as to matter and "getting up" than anything of the kind heretofore attempted in this Province. It is the authorized organ of a young and already vigorous

society, called the *Canadian Institute*, the main object of which is the cultivation and diffusion of general Science in its various practical applications to the requirements of this young and rising country. We have neither time nor space, at present, to speak of the work in detail, but can conscientiously recommend it to the patronage of all who feel an interest in diffusing sound and practical information among the community at large. The third number will contain a description, with several illustrations, of the late Provincial Exhibition, and the Board of Agriculture have ordered a thousand copies for gratuitous distribution.

ANGLO AMERICAN MAGAZINE, November. Toronto: Thomas Maclear.

This popular Canadian serial continues to improve. The current number contains several well written articles, one on the "Farming Interest" we specially recommend to the notice of our readers. The illustrations consist of a portrait of Sir Walter Raleigh, accompanied by a memoir; a view of Toronto, and the Fashions for the month. The execution of the engravings is highly creditable to Canadian art, as is also the production of the work as a whole, both in a literary and mechanical point of view, and we trust a discerning public will not be backward in patronizing a publication which is essentially a home production, and well calculated to elevate the character and promote the best interests of the country.

Letters



Patent.

TIME & LABOR SAVED ARE MONEY EARNED

B. P. PAIGE & Co., SOLE PATENTEES.

THE Subscribers having had secured to themselves the exclusive right to Manufacture and vend to others to use, in the Territory of Upper and Lower Canada,

SEVERANE'S PATENT IMPROVED HORSE-POWER AND THRASHING MACHINE,

One of the most Valuable Machines ever invented for saving labor and time, respectfully inform the Public that having greatly enlarged their Extensive Establishment on Wellington Street, now extending through from Prince to George Street, which will give them ample room and accommodations, they trust, to enable them hereafter to supply the whole Farming Community of Canada, with a machine that will thrash and clean more grain in a day with less expense and more neatness than any other Thrashing Machine in use, and requiring but Two Horses.

We beg leave to say to our Customers & Friends, that we are again prepared to furnish those in want of Thrashing Machines, with an article superior even to those heretofore manufactured by us. Our long experience in making, and the very liberal patronage we have enjoyed in the sale of our Machines,

has, together with a constant determination to produce an article that will never fail to excel all others, caused us to watch carefully all the improvements that could be made from time to time, until now we feel confident in saying, that for durability, neatness of Work and amount of it they can do, our Thrashing Machines are unequalled by any in use, and while the grain is thrashed clean, and none of it broken or wasted, it is at the same time perfectly cleaned, fit for the mill, or any market.

One of the above named Machines, will give a man, with proper diligence and attention, an income of from five to eight hundred dollars a year, as appears by the statements of a great number of gentlemen, who thrashed last season, and have kindly given us permission to refer customers to them for information in regard to the operation of our Machines.

Whereas, Letters Patent were obtained, bearing date March 5, 1849, on said Machine, the public are cautioned against purchasing, using, and manufacturing any imitation article, as all infringements will be dealt with according to the law of the land. All the genuine Machines will be accompanied by a Deed, signed by B. P. PAIGE, the owner of the right, giving the purchaser the right to use or transfer the same.

All orders addressed to us, or to **WILLIAM JOHNSON**, our Agent, will be promptly attended to. Machines shipped to any Port in Upper or Lower Canada, and every one warranted to be as good as recommended.

B. P. PAIGE & Co.

The Agents for the sale of the above Machine in Canada West are as follows:—Workman, Woodside & Co., Toronto; Joswell Wilson, Ancaster; Horatio A. Wilson, Westminster; M. Anderson & Co. London; Mr. Samuel Young, Asphodel. 66s-6m
Montreal, August 18:22.

UNIVERSITY OF TORONTO.

Theory and Practice of Agriculture.

PROFESSOR BUCKLAND'S COURSE OF LECTURES, embracing the History, Science, and Practice of Agriculture, will be given during Hilary Term, commencing January 10th, 1853. Three Lectures a week. Fee, \$1 for the Course.

The Canadian Agriculturist

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TERMS.

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N. B.—No advertisements inserted excepting those having an especial reference to agriculture.—Matters, however, that possess a general interest to agriculturists, will receive an Editorial Notice upon a personal or written application.

THE
CANADIAN AGRICULTURIST
AND
Transactions
OF THE
BOARD OF AGRICULTURE OF UPPER CANADA.

VOL. IV.

TORONTO, DECEMBER, 1852.

NO. 12.

THE NEW AGRICULTURAL BILL.

Our readers are aware that a new measure for the improvement of Agriculture, was introduced by the Hon. M. Cameron during the early part of the present Session of Parliament. Although much assailed by the more violent of those journals which oppose the present Government, and in some cases grossly misrepresented, the measure passed by a large majority—we believe as high as 51 to 17—and has since received the Royal sanction. We have obtained a copy of the Bill as it passed the House, and publish it for the information of our readers.

We would observe that this measure, although opposed from political motives, is not in any shape a political measure. It must be worked out in all its details by those whom the majority of the people elect for that purpose. The only feature not embraced in the previous law is the Bureau, and even this was so far sanctioned by the provision which made the Inspector General a member of the Board of Agriculture, that the new law is only a carrying out of the principle (already recognised,) that a member of the Executive Government should be specially charged with the duty of fostering and promoting the agricultural interests of the country. Such a provision cannot be regarded as party or political in its character, because whether a Liberal or Conservative Administration rules, a member of that Administration must for the time being, discharge the duties of the office. We have noticed the expression of a fear that *politics* would hereafter be introduced into Agricultural Societies. It was argued that the Bill would necessarily lead to such a result, because all Societies, &c., were placed under Mr. Cameron, the present minister, and that he would appoint his partizans to all the offices, &c., &c. The persons who argue thus display their igno-

rance of the law, and give reason for the suspicion that they would like to bring about the very thing they profess to dread. Agricultural Societies are as independent of the Government under the new law, and in a position to become more so, *than they ever were before*. They are formed by the people of the county or township—elect their own officers,—conduct business in their own way,—and upon raising a certain sum of money, become *entitled* to a certain other sum from the public chest without any interference whatever.

There are two *Boards* of Agriculture, one in Upper and one in Lower Canada, also to be *elected* by the people through their Societies, of which Boards the minister is *ex officio* a member. In the draft of the Bill he was made President, with power to appoint a Vice President. These Boards must depend wholly upon the Government of the day for the *funds* with which to carry on their operations, and therefore there would have been a great advantage in having one member at least appointed by, and in the confidence of the government. But the zeal of a few opponents of the measure was so strong for the interests of the agriculturists [?] that they opposed this provision, and to meet their views the clause was altered. The consequence is that practically there is no connection between the Boards and the Government, though the creation of these Boards was always intended to form a link between the Societies and the Government, and though their ability to accomplish any good will depend almost entirely on the assistance they will be able to obtain from time to time from the minister of the day. If he does not approve of their suggestions, of course he will not grant the means to carry them out. We contend therefore that in the only case in which any direct connection with the Executive was proposed by the Bill it was very desirable that such a connection should be formed. No improper influence, no coercion could have been used, because there would have been but one

vote against ten. And as to the power of granting or withholding money that rests with the minister now as it must continue to do. We have made these remarks to meet the absurd objections which, both in the House and out of it, were raised to this bill by parties who evidently did not understand its object or subject matter.

As to the County and Township Societies they remain as they did before with the exception of two or three amendments to improve their working. These were with one or two exceptions suggested by persons connected with the Societies. Some amendments were made in the House at the suggestion of members, the advantage of which remains to be seen. We have enclosed within brackets [thus] the additions and alterations which the bill received in the House.

There are two or three practical points to which we direct the attention of Directors and others interested in Agricultural Societies.

1. All County Societies now legally organized do not require to be organized anew, but at the annual meeting in February they may elect *seven* instead of *five* Directors: (see sec. 1 and 27.)

2. County Societies organized under 14 and 15 Vic., as well as those which may be organized under the present act, should send a true copy of their Declaration to the Board of Agriculture in order that the Board may know and recognize their legal existence (Sec. 25.)

3. By section 36 County Societies are *obliged* to hold their Exhibitions at the County Town, unless a township society should "petition" to have one held in a Township. This is one of the amendments made in the House, at the instance, we believe, of the member for Waterloo. As the Bill was introduced the Directors of the County Society consisting of all the Presidents of the Township Societies as well as those elected by itself, had the power to say where their Exhibitions should be held. This is taken away by the amendment, not we fear for the benefit in all cases of the County Societies.

4. County Societies hereafter obtain the Government grant through the Board of Agriculture, (sec. 40.) and can only retain *two-fifths* for their own use, instead of one-half as formerly.

5. United Counties may now form separate Societies for each County of the Union, but each of such Societies will be limited to £150. When three Counties are united it will be advisable to form separate Societies at once, as the United Counties may thus obtain £450, whereas if they have but one County Society they can only draw £250, (sec. 38.)

6. Societies may now establish in conjunction with a Municipal Council, or alone, a School-

Farm—a most important privilege if exercised and carried out in an intelligent spirit, (sec. 43.)

7. Township Societies must hereafter organize by signing a Declaration in the same way as County Societies. The amount to be raised is reduced to £10, (sec. 33.)

8. Township Societies may become Corporate bodies if they wish, by passing a resolution to that effect, (see sec. 42.)

The Bill should be carefully read by the Officers of County and Township Societies before their next annual meetings, in order that its requirements may be complied with, and the Society become entitled to a share of the public Grant. We only have space in this number for the above suggestions.

An Act to provide for the establishment of a Bureau of Agriculture, and to amend and consolidate the Laws relating to Agriculture.

(10th Nov., 1852.)

WHEREAS the improvement of Agriculture is an object of great importance to the people of this Province, and whereas the erection of Central Boards and the organization of Local Societies have been found eminently useful in promoting such improvement, but in the absence of a suitable provision for the collection and dissemination in an authentic form of facts and statistics relating to Agriculture, the full benefit of these Associations is not attained, and it is therefore expedient to provide for the establishment of a Bureau of Agriculture in connection with one of the Public Departments; and it is also expedient to amend and consolidate the laws now in force relating to Agriculture: Be it therefore enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and of the Legislative Assembly of the Province of Canada, constituted and assembled by virtue of and under the authority of an Act passed in the Parliament of the United Kingdom of Great Britain and Ireland, and intituled, *An Act to re-unite the Provinces of Upper and Lower Canada, and for the Government of Canada*, and it is hereby enacted by the authority of the same, That from and after the passing of this Act, the Act passed in the Session held in the tenth and eleventh years of Her Majesty's reign, and intituled, *An Act to Incorporate the Lower Canada Agricultural Society*, and the Act passed in the same Session, and intituled, *An Act for the incorporation of the Agricultural Association of Upper Canada*, and the Act passed in the Session held in the thirteenth and fourteenth years of Her Majesty's reign, and intituled, *An Act to establish a Board of Agriculture in Upper Canada*, and the Act passed in the Session held in the fourteenth and fifteenth years of Her Majesty's reign, and intituled, *An Act to provide for the better organization of Agricultural Societies in Upper Canada*, shall be, and the same are hereby repealed, but all Agricultural Societies, Associations and Boards of Agriculture incorporated or otherwise, which have been

lawfully organized or established under the said Acts, or any, or either of them, shall continue as if the said Acts were still in force, except in so far as such Societies, Associations or Boards, may be altered or effected by this Act.

BUREAU OF AGRICULTURE.

II. It shall be lawful for the Governor in Council to establish and organize a Bureau of Agriculture, which shall be attached to one of the Public Departments, and the Head of such Department shall be charged with the direction of the said Bureau, and shall in respect thereof be known as the Minister of Agriculture.

III. The said Minister shall be *ex officio* Member of all Boards of Agriculture which now are or hereafter may be established in this Province. [It shall and may be lawful for the Members of the Board of Agriculture, to elect from among themselves a President and Vice-President at their first meeting and every annual meeting thereafter.]

IV. The said Minister shall also receive all applications, drawings, descriptions, specifications and models for or relating to Patents for Inventions in this Province, and shall keep the records thereof; and all Acts now in force relating to Patents for Inventions, and which direct anything to be done by or through the Provincial Secretary, shall be held to have directed the same to be done by or through the said Minister.

V. The said Minister shall also be a Member of the Board of Registration and Statistics, in the place of the Inspector General, and shall be the Chairman thereof, and shall, under the general direction of the said Board, have charge of the Census and other Statistical Returns.

VI. It shall be the duty of the said Minister to institute inquiries and collect useful facts and statistics relating to the Agricultural interests of the Province, and to adopt measures for disseminating or publishing the same in such manner and form as he may find best adapted to promote improvement within the Province, and to encourage immigration from other countries; and he shall annually prepare and submit to Parliament, within ten days after the opening of each session thereof, a detailed and succinct Report of his proceedings.

VII. All Boards of Agriculture, Agricultural Societies, Associations, Municipal Councils, Mechanics' Institutes, Public Institutions, and Public Officers in this Province, shall promptly answer official communications from the said Bureau of Agriculture, and shall make diligent efforts to supply correct information on all questions submitted to them respectively; [and any Officer of any such Board, Society, Association, Council, or other Public Institution, who shall refuse or wilfully neglect to answer any question, or to furnish any information relating to the Agricultural interests, or the Statistics of this Province, whenever required so to do, either by the said Minister, or by any person duly authorised by such Minister in that behalf, shall for every such offence incur a penalty of ten pounds currency, which penalty shall be recoverable by any person suing for the same before any Court

of competent jurisdiction, and shall be paid to Her Majesty.]

BOARDS OF AGRICULTURE.

VIII. Whereas a Board of Agriculture has been established in Upper Canada under the authority of an Act of the Legislature of this Province, intituled, *An Act to establish a Board of Agriculture in Upper Canada*, and it is expedient to provide for the establishment of a similar Board in Lower Canada, and to simplify and reduce into one Act all provisions for the future operation and management of the said Boards respectively—Be it enacted, That it shall be lawful for the Governor in Council to constitute and appoint a Board of Agriculture for Lower Canada, to be composed of eight Members, exclusive of the *ex officio* members thereof; and it shall be the duty of the Lower Canada Agricultural Society established under and by virtue of the Act tenth and eleventh Victoria, chapter sixty, hereby repealed, to take immediate steps to wind up its affairs, and so soon as the said Board shall be constituted, all the property moveable and immoveable which may remain and belong to the said Society after payment of its just debts, shall be transferred to and become the property of the said Board, and all actions or suits now pending or which may be brought by or against the said Society before the said Board shall be constituted, shall proceed to termination as if the said Act tenth and eleventh Victoria had not been repealed.

X. The Presidents, for the time being, of the Agricultural Associations hereinafter mentioned, and all Professors of Agriculture in chartered Colleges, Universities, and other public educational institutions, shall respectively be members *ex officio* of the Board for that section of the Province in which they reside.

X. Four Members of each Board shall annually retire and cease to be Members thereof, unless re-elected; and the names of the first four Members who shall so retire, shall on or before the first day of October, in the year of our Lord one thousand eight hundred and fifty-three, be ascertained by lot in such manner as the said Boards may respectively determine, and the names of the retiring Members shall forthwith be published in the Agricultural Journals of the section of the Province in which they reside.

XI. The remaining Members (except *ex officio* Members, who shall be exempt from the operation of this and the previous section) shall vacate their seats at the expiration of a year from the retirement of the said first four Members, and so on in rotation, each seat being vacated every alternate year, but retiring Members may continue to exercise all their functions until their successors have been duly elected as hereinafter provided.

XII. The County Agricultural Societies in Upper and Lower Canada respectively shall, at their annual meeting in February in the year of our Lord one thousand eight hundred and fifty-four, and at each annual meeting thereafter, nominate four fit and proper persons to be Members of the said Boards of Agriculture respectively, and shall forthwith transmit the names of the persons so nominated to the Bureau of Agri-

culture, and the four persons who shall have been nominated by the greatest number of Societies shall be Members of the said Boards respectively, in the place of the Members vacating their seats as aforesaid. Vacancies which may at any time happen through death, resignation, or otherwise, may be filled up by the Governor in Council.

XIII. In case of an equality of votes for one or more of the persons so nominated, the Minister of Agriculture shall decide which shall be the Member, and he shall cause the persons so nominated, and the Boards to which they are nominated respectively, to be immediately notified of the result.

XIV. It shall not be lawful for either of the said Boards to pay or allow any sum to a Member thereof, for acting as such Member, except the amount of his actual necessary expenses in attending the regular meetings of the Board, but each of the said Boards may appoint a Secretary from among themselves or otherwise, and may pay him a reasonable salary for his services.

XV. The regular meetings of the said Boards shall be held pursuant to adjournment, or be called at the instance of the President or Vice-President, or upon the written request of any three Members, and at least five days' notice of such meeting shall be given to each Member, and it shall be lawful for the Board, in the absence of the President and Vice-President, to appoint a Chairman *pro tempore*, and five Members shall be a *quorum*.

XVI. It shall be the duty of the said Boards to receive the Reports of Agricultural Societies, and before granting the certificates hereinafter mentioned, to see that they have complied with the law; to take measures, with the approbation of the Minister of Agriculture, to procure and set in operation a model, illustrative, or experimental farm or farms in their respective sections of the Province, and in connection with any public school, college, or university, or otherwise, and to manage and conduct the same; to collect and establish, at Toronto and Montreal respectively, an Agricultural Museum and an Agricultural and Horticultural Library; to take measures to obtain from other countries animals of new or improved breeds; new varieties of grain, seeds, vegetables, or other agricultural productions; new or improved implements of husbandry, or new machines which may appear adapted to facilitate agricultural operations; and to test the quality, value and usefulness of such animals, grain, seeds, vegetables or other productions, implements or machines, and generally to adopt every means in their power to promote improvement in the agriculture of this Province; and the said Boards shall keep a Record of their respective transactions, and shall from time to time publish, in such manner and form as to secure the widest circulation among the Agricultural Societies and farmers generally, all such Reports, Essays, Lectures, and other useful information as the said Boards respectively may procure and adjudge suitable for publication; and if the said Boards, or either of them shall publish a monthly Journal, or adopt as their channel of communication

with Agricultural Societies the Agricultural Journals now published in Upper and Lower Canada respectively, it shall be the duty of all Agricultural Societies receiving a share of the Public Grant to give at least one month's notice of the time and place of holding their Exhibitions in the Journals so published or adopted by the said Boards respectively.

XVII. The said Boards shall transmit to the Bureau of Agriculture a copy of all their resolutions, by-laws or other formal proceedings, immediately after the adoption thereof; and every resolution, by-law, or other proceeding of the said Boards respectively, which may involve an expenditure of money to an amount exceeding ten pounds, shall not be passed except with the assent of [a majority of the members thereof.]

XVIII. Each of the said Boards shall be and become a Body Corporate, and shall have power to acquire and hold land and personal property, and to sell, lease, or otherwise dispose of the same.

AGRICULTURAL ASSOCIATIONS.

XIX. Whereas an Agricultural Association has existed for some time past in Upper Canada, and by means of annual exhibitions of the productions of that section of the Province, has effected much good, and whereas it is expedient to organize a similar Association in Lower Canada, and to make provision for the future support and management of the said Associations: Be it therefore enacted as follows:

The Members of the Boards of Agriculture, the Presidents and Vice-Presidents of all lawfully organised County Agricultural Societies, and all subscribers of Five Shillings annually, shall in their respective sections of the Province, be and constitute an Agricultural Association for that section.

XX. The Members of the Board of Agriculture and the Presidents and Vice-Presidents of County Societies, (or any two Members whom a County Society may have appointed Directors instead of its President and Vice-President) shall be the Directors of such Agricultural Association, [and it shall be lawful for the Agricultural Association to elect a Treasurer.]

XXI. The said Associations shall each hold an Annual Fair or Exhibition, which shall be open to competitors from any part of the Province, and the said Directors shall hold an annual meeting during the week of the annual Exhibition, and may at such meeting elect a President and Vice-Presidents, and appoint a place for holding the next meeting and Exhibition of the Association, and may make rules and regulations for the management of such Exhibition, and may appoint a Local Committee at the place where such Exhibition is appointed to be held, and prescribe the powers and duties of the said Committee.

XXII. The Board of Agriculture shall be the Council of the Association, with full power to act for and on behalf of the Association between the annual meetings thereof, and all grants of money, subscriptions, or other funds, made or appropriated to or for the use of the Association, (except money collected by or granted to any

Local Committee for the local expenses of an Exhibition), shall be received by and expended under the direction of the said Board, and the Secretary of the Board shall be *ex officio* Secretary of the Association.

XXIII. All contracts and all legal proceedings by, with, or concerning the Association, shall be made and had with the Board of Agriculture in its Corporate capacity, and no other contracts, agreements, actions or proceedings shall bind or affect the Association.

XXIV. It shall be lawful for the Municipality of any City, Town, Village, County, Township or Parish in this Province, to grant money in aid of the Agricultural Association for that part of the Province to which the Municipality belong.

AGRICULTURAL SOCIETIES, UPPER CANADA.

XXV. Whereas the Act to provide for the better organization of Agricultural Societies in Upper Canada, passed during the now last Session, requires some amendments, and it is expedient to re-enact the same, and to embody therein the said amendments: Be it therefore enacted as follows:

COUNTY SOCIETIES.

A County Agricultural Society may be organized in each of the Counties of Upper Canada, whenever fifty persons shall become Members thereof, by signing a Declaration in the form of the Schedule A to this Act annexed, and subscribing each not less than Five Shillings annually to the Funds of the said Society, and a true copy of the said Declaration shall within one month after being so signed be transmitted to the Board of Agriculture.

XXVI. The object of the said Societies, and of the Township or Branch Societies in connection therewith, shall be to encourage improvement in Agriculture, by holding Meetings for discussion, and for hearing Lectures on subjects connected with the theory and practice of improve Husbandry, by promoting the circulation of the Agricultural Periodicals published in the Province; by importing or otherwise procuring Seeds, Plants and Animals of new and valuable kinds; by offering prizes for Essays on Questions of Scientific Enquiry relating to Agriculture, and by awarding Premiums for Excellence in the raising or introduction of Stock, the invention or improvement of Agricultural Implements and Machines, the production of grain and all kinds of vegetables, and generally for excellence in any Agricultural Production or Operation; and it shall not be lawful to expend the Funds of the Societies, derived from subscriptions of Members, or the Public Grant, for any object inconsistent with those above mentioned; and the Directors of every such County Society at any meeting which shall be called by written notice as hereinafter mentioned, and in which notice the object of the meeting shall have full power to make, alter and repeal By-Laws and Rules for the regulation of such Society and the carrying out of its objects.

XXVII. The said societies shall hold their annual Meeting in the month of February in each

year, and shall at such Meeting, elect a President, two Vice-Presidents, a Secretary and Treasurer and not more than seven Directors.

XXVIII. The Presidents of the several Township Agricultural Societies, within the County, shall, in addition to those before mentioned be *ex-officio* Directors of the County Society, and the said Officers and Directors shall and may for the year next following the Annual Meeting, and until the election of their successors, exercise all the powers vested in the County Society by this Act.

XXIX. The Meetings of the Officers and Directors shall be held pursuant to adjournment, or called by written notice to each and given by authority of the President, or in his absence the Senior Vice-President, at least one week before the day appointed; and at any Meeting five shall be a quorum.

XXX. The said Officers and Directors shall in addition to the ordinary duties of management, cause to be prepared, and shall present at the Annual Meeting, a Report of their proceedings during the year, in which shall be stated the names of all the Members of the Society, the amount paid by each set opposite his name, the names of all persons to whom Premiums were awarded, the amount of such Premiums respectively, and the name of the Animal, Article or thing in respect of which the same was granted together with such remarks upon the Agriculture of the County, the improvements which have been or may be made therein, as the Directors shall be enabled to offer; there shall also be presented to the said Annual Meeting, a detailed statement of the receipts and disbursements of the Society during the year, which Report and Statement, if approved by the meeting, shall be entered in Society's Journal, to be kept for such purposes, and signed by the President, or Vice-President, as being a correct entry, and a true copy thereof certified by the President or Secretary for the time being, shall be sent to the Board of Agriculture, on or before the first day of April following.

XXXI. The County Society shall receive the Reports of the Township or Branch Societies, and shall transmit them to the Board of Agriculture, with such remarks thereon as may enable the said Board to obtain a correct knowledge of the progress of Agricultural Improvement in the County.

XXXII. It shall be the duty of the said Officers and Directors to answer such queries, and give such information as the Board of Agriculture, or Minister of Agriculture may from time to time, by Circular Letter, or otherwise, require, touching the interests or condition of Agriculture in their county, and generally to act as far as practicable upon the recommendations of the said Board.

TOWNSHIP SOCIETIES.

XXXIII. A Township or Branch Agricultural Society may be organized in each Township of any County, or in any two or more Townships together, when ever a sufficient number of persons shall become Members, by signing a decla-

ration in the form of the Schedule A. to this Act annexed, and subscribing each not less than Five Shillings annually to the funds thereof, to raise an aggregate sum of not less than Ten Pounds, and a true copy of the said Declaration certified by the President or Vice-President of such Society, shall be forthwith transmitted to the County Society.

XXXIV. The said Societies shall hold their Annual Meeting in the month of January in each year, and shall elect a President, Vice-President Secretary and Treasurer, and not fewer than three or more than nine Directors.

XXXV. The said Officers and Directors shall prepare and present to the Annual Meeting of the Society, a Report of their proceedings during the year, in the same manner as hereinbefore directed for County Societies, and containing information under the same heads; and shall transmit a true copy of thereof certified by the President or Vice-President, to the Secretary of the County Society in time for the Annual Meeting thereof in the month of February.

GENERAL PROVISIONS.

XXXVI. [The Exhibition of the County Society shall be held at the County Town, but it shall be lawful for the Directors of the County Society, from time to time if they think fit, on the Petition of the Directors of the Society, of any Township (or Townships united for the purposes of this Act) other than the Township in which the County Town stands to appoint an Exhibition of the County Society, to be held within such other Township or United Townships, and in such case the Township Society so petitioning,] shall not hold Exhibition for that year, but the same shall merge in the Exhibition of the County Society, and the Funds of the Township or Branch Society for that year's Exhibition, shall be paid over to the Treasurer of the County Society: Provided that any Township or Branch Society shall not forfeit any right to a share of the Public Grant for not making a full Report for such year; Provided also, that the Directors of the Society of the Township in which the County Exhibition shall be held, shall for that year be *ex officio* Directors of the County Society.

XXXVII. When the President and Secretary of the Board of Agriculture shall certify to the Minister of Agriculture, that any County Society has sent to the said Board Reports and Statements as required by this Act, for the year then last previous, and shall also certify that the Treasurer or other Officer of the said Society, has transmitted to the said Board an Affidavit, which may be in the form of the Schedule B to this Act annexed, and may be sworn to before any Justice of the Peace who is hereby authorized to receive the same, stating the amount subscribed for that year, and paid to the Treasurer of the County Society by the Members thereof, and by the several Township Societies of the said County, it shall be lawful for the Governor of this Province to issue his Warrant in favor of such County Society, for a sum to be taken out of any unappropriated moneys in the hands of the Receiver General, equal to three times the amount appearing by the said affidavit to be in the hands of the

Treasurer: Provided, that no Grant shall be made unless Twenty-five Pounds be first subscribed and paid to the Treasurer; and provided that the whole amount granted to any County Society shall not exceed Two hundred and fifty pounds in any year; and provided also that it shall not be necessary that any County Society should have sent Reports and Statements as above mentioned to the Board of Agriculture, in order to obtain the Government allowance under this section for the first year in which it shall be established, but it shall be sufficient that such Society has complied with the other requirements of this Act.

XXXVIII. Provided always, That in the case of Counties united for judicial purposes, a County Society may be formed for the said United Counties, or for any one or two of such Counties, but the amount granted from the Public Fund to the Society for any two of such United Counties, shall not exceed two hundred and fifty pounds, and the amount granted to the Society for any one of the said United Counties, shall not exceed one hundred and fifty pounds.

XXXIX. Every Township or Branch Society, organized according to this Act, and sending a report of its proceedings to the County Society, as hereinbefore required, shall be entitled to a share of the grant to the County Society, in proportion to the amount which shall have been subscribed by the Members of such Township or Branch Society, and deposited with the Treasurer of the County Society, on or before the first day of May, in each year, as compared with the amounts so deposited by other Township and Branch Societies of the said County; and the sum so deposited by any Township or Branch Society shall be repaid, along with its share of the Public Grant, so soon as the said grant shall have been received by the County Society: Provided always, that not more than three fifths of the sum so received by any County Society shall be subject to division among Township or Branch Societies; And provided that the declaration mentioned in section thirty-three, shall be deemed a sufficient report for the first year in which any Township or Branch Society may have been organized; [And provided, that nothing in this Act contained shall be construed as admitting any Member of a Township Society in virtue of his subscription thereto, and without further subscription to the County Society to any of the privileges of a Member of such County Society.]

XL. The Board of Agriculture shall receive from Government, and pay over to the County Societies, the Public Grants to which they are respectively entitled, and it shall be lawful for the said Board to retain, for the use of the Agricultural Association, one tenth part of all such grants.

XLI. Any Treasurer or other Officer of any County, Township or Branch Society, who shall make affidavit that a subscription, or any sum of money, has been paid to him for the Society, when it has not been so paid, or who shall return any such subscription, shall forfeit and pay to Her Majesty the sum of Ten Pounds for every such offence, and shall be guilty of perjury and be held liable to all the penalties with which the law may visit that crime.

XLII. The several County Societies organized according to the provisions of this Act, or of the said Act of the 14th and 15th Victoria, intituled, *An Act to provide for the better organization of Agricultural Societies in Upper Canada*, shall be and become Bodies Corporate, with power to acquire and hold land as a site for Fairs and Exhibitions, or for a School Farm, and to sell, lease, or otherwise dispose of the same; and any Township or Branch Society lawfully organized as aforesaid, may at any regular Meeting adopt a Resolution that the said Society is desirous of being incorporated, and upon filing the said resolution with the Secretary of the Board of Agriculture, such Society shall thenceforth be and become a Body Corporate, and shall have like powers with County Societies.

XLIII. It shall and may be lawful for any County or Township Society, or the Municipal Council of any County or Township of Upper Canada, to purchase and hold land for the purpose of establishing a School-Farm to instruct pupils in the science and practice of Agriculture, and any Society and any Municipal Council may purchase and hold such School-Farm conjointly or otherwise, and may conjointly or otherwise make all necessary rules and regulations for the management thereof, provided that not more than one hundred acres of land shall be so held by any Society or Council, whether conjointly or otherwise.

SCHEDULE A.

We, whose names are subscribed hereto, agree to form ourselves into a Society, under the provisions of the Act of the Legislature, (*title and date of this Act*,) to be called the "County (Township or Branch, *as the case may be*,) Agricultural Society of the County of " (or Township of); and we hereby severally agree to pay to the Treasurer yearly, while we continue Members of the Society, (any member being at liberty to retire therefrom upon giving notice in writing to the Secretary, at any time before the annual meeting, of his wish so to do,) the sums opposite our respective names, and we further agree to conform to the Rules and By-Laws of the said Society.

Names. £. s. d.

SCHEDULE B.

County of {
to wit: {
I, A. B., of the Township of "Treasurer
of the County Agricultural Society of
make oath and say, that the sum of has
been paid into my hands, since the first day of
February last, by the Township Agricultural Soci-
eties of the said County, as and for the Mem-
bers' subscription for this year; and that the
sum of has been paid into my
hands, as subscriptions for this year, by members
of the said County Society; and that the said
sums, making in the whole the sum of
now remain in my hands, ready to be disposed
of, according to law.

Sworn to before me }
this day of }
A. D. 185 . } A. B.
C. D.
Justice of the Peace for the
County of

CHICKORY VERSUS COFFEE.

The London *Globe* says that great credit is due to Lord Derby for his uncompromising determination to put a stop to the long prevalent adulteration of coffee, which ceased on the 3rd Nov. Much satisfaction has been expressed by the colonist and fair trader, and we doubt not the Revenue tables a year hence will exhibit a vast improvement. The public will now be enabled to purchase coffee and chickory at their respective values, and use them according to their own taste. Strenuous efforts, we are aware, have been made to obtain a revocation of the recent minute, but we are happy to say without success; and there is every prospect of coffee being restored to a fair position as an article of colonial produce.

The Agriculturist.

TORONTO, DECEMBER, 1852.

TO OUR READERS.

This being the last number of the *Agriculturist* for the year, which is now fast drawing to a close, we embrace the opportunity of addressing a few words to our subscribers in reference to the position and prospects of this Journal.

The present volume will, we doubt not, be regarded as a marked improvement on its predecessors, both as to its mechanical execution and the amount and quality of the matter it contains. In taking, however, a review of our labours during the year, we cannot but feel conscious of numerous defects and short-comings, and must frankly confess that our Journal has not yet reached that high degree of completeness and excellence to which we earnestly hope it will ere long attain.

It should be borne in mind by the friends of our agricultural literature that there are two essential requisites to the permanent success and wide-spread usefulness of a work of this kind, viz., a regular and frequent communication of useful and interesting matter from *practical* men, residing in various parts of the country; and a subscription list sufficiently extensive not only to defray the necessary expenses incidental to the mere printing and publishing, but to allow a compensation for the time and labour necessarily expended in its editorial management. The farmers of Upper Canada have not yet extended that aid to the *Agriculturist* which is needed to meet properly these two demands.

We cheerfully embrace this opportunity to thank those of our friends who have favoured us with original communications during the current year, and to express a hope that they will continue the same with such an increase of their number as will render this Journal what we are most anxious to make it,—a complete and healthful exponent of the state and capabilities of the agriculture of Upper Canada. If but one in a hundred of the energetic and intelligent farmers of this country would furnish us once a year with a short article on some subject coming within the range of his observation or experience, our Journal would contain more diversified and more interesting original matter, and would become more generally useful.

In returning our grateful acknowledgements to our subscribers, we are anxious not only to retain their present support, but request also their active exertion to extend our subscription list, which at the reduced rates to Clubs and Societies, is barely sufficient to defray actual expenses, leaving nothing for editorial supervision. Indeed, without the aid rendered by the Board of Agriculture during the current year, the *Agriculturist* could not have been sustained at its present size, for half a dollar. An addition of two thousand names to our subscription list, (and it is fair to assume that the whole of Upper Canada could easily supply that number), would place us in a position to do justice to the publication, by introducing a larger number of illustrations, and by devoting more time and labour in its preparation and management. As a cheap Monthly paper, like the *Agriculturist*, will not bear the heavy expenses involved in the employment of Travelling Agents, *we must look to the individual exertions of the friends of Agricultural Improvement, in their several localities, for any material increase of our subscribers.* FARMERS OF CANADA, WILL YOU NOT READ, WRITE FOR, AND EXTEND THE CIRCULATION OF YOUR OWN ORGAN?

Although our entire arrangements for 1853 have not yet been definitely determined, it is our intention to continue the *Agriculturist* as heretofore, both as respects size and price; and we hope to receive such encouragement as will enable us to carry out improvements in our next volume, that cannot fail to make the work more useful and interesting to a wider circle of readers; to all, in short, who live in the country, and can appreciate the pleasures and advantages of rural life.

A new era in the agricultural history of this country may now be said to have commenced, in the elevating of the farmers' art and interest to an honourable position in the Councils of the State; in the establishment of an Agricultural Professorship in our Provincial

University, with an Experimental Farm to be attached thereto; in the creation of a Board of Agriculture now getting into efficient working order, and in bringing under a uniform system of management the Provincial, County, and Township Agricultural Societies, by means of the new and much improved statute,—to such aids and appliances as these, eliciting and systematising throughout the length and breadth of the land, the most valuable and trustworthy information, we look with cheering hope and confidence as journalists, for ample material to enrich our pages for an indefinite time to come.

The Postmaster General, in consideration of the great public utility of such a publication as this, and having extended the same privilege to a similar journal in Lower Canada, has promised to allow the *Agriculturist* to go to subscribers *free of postage*. This we trust will be an additional inducement to Societies, Clubs and individuals to aid us in obtaining a wider circulation.

TOWNSHIP OF HAMILTON FARMERS' CLUB.

THE Township of Hamilton Farmers' Club met at the North American Hotel, Cobourg, on September 30th, 1852.

John Wade, Esq., President, in the chair.

Present—Messrs. Richardson, Black, Alcorn, Eagleson, Masson, Sutherland, A. J. Burnham, Stewart, Wright, Owston, Campbell, &c. The meeting was also favoured with the company of Col. Cameron, Kingston, Sutherland, and other gentlemen from a distance.

The subject for discussion, viz., the advantages and importance of fairs was introduced by Mr. James Sutherland in the following essay:—

In reviewing the history of the various nations who have figured prominently in the world, we must at once come to the conclusion that their prosperity or downfall depends less upon a fertile soil and a salubrious climate than upon the energy intelligence, and enterprise of their inhabitants. Many of those nations which once stood prominent for arts, science, commercial and agricultural enterprise, are now from force of circumstances dwindled down to a state of semi-barbarism, increasing in crime and indigence and ruled with despotic power. One of the leading causes of such results is a blind neglect evinced by the inhabitants to matters of the most paramount interest to their prosperity.

We would be far from supposing or predicting such a climax to the at present flourishing prospects of Canada, yet there are some of the most essential elements of her prosperity that have never been brought into active existence, although in many instances all that is wanted is a cordial co-operation of the parties concerned. Among things most essential to the interest of the farmer would be a permanent establishment of periodical fairs or markets for the sale of live stock, grain, &c.

Supposing one of our prominent British agriculturists, who looks forward to his periodical market with as much interest as to seed time or harvest, on his first arrival in this country is conducted to the scene of the Provincial Exhibition at Toronto, and reviewing, as he unquestionably would, with pleasure, the beauty, strength, and symmetry of our various classes of horses, and the no less prominent perfections of our various breeds of cattle, sheep, and hogs, and the great variety and superior mechanical construction and usefulness of our farming implements, and the various other attractions of that exhibition, of which Canada has just reason to be proud, he would naturally be led to enquire how our markets for horses, cattle, grain, &c., were conducted, their frequency and convenience in distance, and when plainly told how far we were behind the age in so requisite a provision for agricultural prosperity, he would certainly be at a loss to account for the conflicting appearance of matters. Our Republican neighbours are better posted up in this respect, and you can at any time learn the price of fat or lean stock, grain, &c., by consulting those papers that take an interest in agricultural pursuits, and who regularly publish the prices realized at the various markets. Our grain market, although somewhat in a better position than our live stock, is yet greatly defective. Wheat, one of our greatest staples for exportation, now varies at the different markets on Lake Ontario at least 6d. per bushel, without any tangible reason for this disparity. There is no doubt but the farmer has the power within himself for changing this state of things, which would be best accomplished by well-organized and extensive grain markets, so as to induce competition. Our millers would be quite as much benefitted as the farmer by this arrangement, as under existing circumstances their mills are often stopped for want of grain, at a time when they most want it. Whereas the farmer would feel in duty bound to bring his grain to a market he himself had brought into existence, and which he would find it his interest to cherish. Our other grain and root crops would of course find an outlet in the same way.

When periodical markets either for live stock or grain are once permanently established in each township, town or district, people will be led to look back with wonder on the present peddling mode, and with regret that they had not sooner emancipated themselves from practices so far behind the age.

Among the many reasons which might be brought forward in favour of congregating on one spot the produce of the farm, whether of live stock or grain, might be quoted the following: The advantage of comparison, which would naturally beget a desire for emulation, and would give both seller and purchaser a more correct idea of the value of the article exposed for sale, by having an opportunity of a fair average throughout the market. Another inducement is held out in the rapidly increasing extent of root crops grown for stall-feeding cattle, and the unbusiness-like mode the purchaser has to adopt to supply himself, he may be scouring over a distant part of the country for his necessary sup-

ply of stock, while he could perhaps make a more advantageous purchase from his nearest neighbour.

The party disposed to sell is equally awkwardly situated, the cause of which is obvious to any one; had we stated periods for disposing of our stock, whether for the butcher, the feeder, the grazier or the dairy, both purchaser and seller would look forward to the specified time for the accomplishment of his desires. Supposing a farmer to liquidate a debt, wished to dispose of a few of his stock for this purpose, he has no certain mode of doing so under existing circumstances, the establishment of markets would do away with this difficulty as well as many others. There are many of the great advantages to be derived from the introduction of markets on which I have not even touched, but I consider the subject of such vital importance to our prosperity that I think it it only requires but a slight notice to bring its importance forcibly to our notice. I am not so little conversant with the matter but that I am aware there are some few places where markets are held, but they are so few and far between that they are but little known, and less heard of. The agricultural population of Canada must rise as one man, and though circumstances in some cases may transpire that may discourage them, and they may find some croakers who will predict their want of success, they will never have their business on a permanent basis until regular markets are firmly established. Much more might be said without exhausting the subject, but my auditors, I have no doubt, will consider I have trespassed long enough on their patience, I will therefore conclude by calling on the Township of Hamilton which has never yet been behind in anything where the furtherance of the farming interest was concerned, to come forward and at once set to work and establish a market for their mutual benefit.

Mr. P. R. Wright said, with the general argument of the Essay just read he most cordially concurred, nor did he believe there was one sane man in Canada who could dispute the principles on which the argument was founded, so clearly was the interest of the farmer (the producer) shown to be brought into direct contact with the consumer or his agent, that he did not see any necessity for illustrating a fact so completely within the grasp of the meanest intellect—he would merely glance at a few of the evils attending the present system, if such a term be applicable to the mode which farmers are at present compelled to adopt for disposing of the various commodities they have to sell. Under present circumstances, he would beg to ask his brother farmers generally the following question: When the butcher for fat stock, or the stall feeder for lean, finds out (how he does so he could not tell, but this he knew, often with great loss of time) A, B, C or D, has got some such stock to sell, and the necessary, what do you ask for so and so? is put,—on what grounds do you fix a price? Is it not chance work? True, we may have heard that “Tom” got \$60 for a pair of steers, and “Dick” \$70 for a yoke of oxen, while “Harry” sold a fat ox for \$100, but this is no data, unless we have an opportunity of putting our steers or oxen side by

side with Tom, Dick, or Harry's, and judging by comparison. Again, it often happens *we* have to look out for a buyer, and in such a case the evil is augmented, for unless he is more than ordinarily conscientious, advantage will be taken of our necessity. In both cases the remedy lies in competition, which can only be brought to bear by *periodical fairs*. The present practice of millers, giving a fixed price for wheat, irrespective of value, cannot be too loudly condemned: in the first place, it is *unjust*; and in the second place, a direct hindrance to improvement by offering a premium for *indolence and carelessness*. That it is unjust is self-evident: A, has wheat clean and nice, weighing 64lbs. per bushel—B, has a sample of inferior quality, with *just a few* chaff, smut, and cockle in it, the mixture weighs 60 lbs per bushel; the miller gives 3s 6d per bushel in each case—that is, he robs honest, careful, industrious A of 6d per bushel, to satisfy careless, indolent, unscrupulous B. Our noble institution, the Provincial Agricultural Association, and its various branches, may offer premiums and honours for the best samples of cereals, &c., but the *millstone* is about their necks, and until the producer of a superior sample receives a *direct premium* on every bushel he sells, there will be but slight improvement, *if any*. The millers say, we cannot make *two prices*—in other words, *circumstances* won't allow them to be *just*! For his part, he could not see that 3s 6d per bushel for clean wheat weighing 64lbs per bushel as a standard, and *less or more* according to quality, should dissatisfy any one, for he must be rogue or fool who will not submit to fair value. The system of purchasing by sample has been, and is, the only one which the farmers in the Old Country will submit to; why it should not obtain in Canada is a question which he would have the encouragers of the present iniquitous system to answer. *Let us have our weekly grain market*. These various meetings of the farmers, apart from the influence they would exert in promoting uniformity of prices, would be important in other respects. There exists, he was sorry to say, a jealousy or want of sociability amongst the agricultural community, which is in direct opposition to their interests. "Union is strength"—but how can strangers unite? *Let us have our periodical markets!* and whilst exchanging our products, let us barter our ideas, shake hands, and become acquainted, then our position will become secure. *Our own Club* is an evidence how much such meetings add, not only to our knowledge, but our happiness; and he would express his hope that there might be at no distant day, in every township in Canada, a *Farmers' Club*.

Mr. Richardson said, he had very little to add to what had been already said; thought that if fairs and markets were established, they would be the means of doing away with so much trading. When a buyer did come to you, you were often obliged to take less for your produce than it was worth, as there was so little competition.

Mr. Samuel Campbell said he thought we ought to have fairs and markets established by all means, where farmers could come and show samples of their grain, and make arrangements with buyers about price, and suitable times to

deliver it. Mr. Wright had alluded to a charter for a fair; he (Mr. C.) thought a charter would be of very little use to them, for he thought the farmers capable of establishing a fair themselves without any charter; thought that if fairs and markets were immediately established, they could not expect them to be large at first, but he had no doubt they would soon increase, as both buyers and sellers would find the convenience of them; he was not a member of the committee that had just sat, and though rather out of place, he would make one suggestion to them, namely—that they ought to give a premium for the best fenced farm, and also for the farm cleanest of thistles and yellow weed (*charlock*), as nothing tended more to keep good neighbourhood among farmers than good fences.

Mr. Stewart said he would be very glad to see fairs if they could be established; he did not know what about a charter; he thought we could not come into the town and establish a fair without the consent of the Corporation; he thought if we had fairs or markets we could get more for many articles that we had to sell; he, yesterday, killed a sheep, the four quarters of which weighed 14lbs, besides 14lbs of clear tallow; he could not get more offered for it than six dollars, and he thought if we had a market where there was competition he would have seven or eight dollars for it; the sheep was from the flock of our worthy President.

Mr. Alcorn said, Mr. President and Gentlemen, they were all aware that he was not a public speaker, although much has been said of the advantages, he did not think that in our present circumstances they would do us much good, until such time as we have more manufactories, and our towns become larger, to have a home market to consume our surplus produce. With regard to grain, that unless for the purpose of sale or exchange for seed, he did not think fairs would benefit us much, as the miller and merchant, who are ruled by the price in the British market, gave us generally as high a price as that market will allow them; neither did he think would fairs benefit us in the sale of fat cattle, as our butchers here were not able to lay in a large stock at once, (for want of convenience for feeding and keeping as they had in the old country), neither is our fat such a drug in the market as it used to be, for in the spring there are butchers going about from all quarters seeking fat cattle; he had always found sufficient lean stock when he wanted to purchase; still he was not opposed to fairs, and they might ultimately do good if they could be got established.

Mr. Mason said, he certainly did wish for fairs, for he had been accustomed to them from his earliest days; he thought there was one great evil, and until that was removed, fairs would do us very little good, he alluded to the want of railway communication. Our neighbours on the other side of the lake had as good a market every day as any fair we would have for a long time yet; but he did not doubt that if once we had a railroad, our market would be as good as theirs; he would certainly prefer a railroad to a fair.

Col. Cameron, Kingston, (on the call of the President) said, he thought a man's happiness in

this world depended very much in his bearing a hand in whatever tended to benefit his fellow man, and as he thought them engaged in such a work, he could not refuse (however unable he thought himself) to address them with regard to fairs; in the county in which he resided there was a general wish some eight or ten years ago for fairs; government was applied to for a charter, which they readily granted, to hold a fair in each township; he really hardly knew what a charter was in each township wanted for, unless that in case of any riot the law might look upon them as lawfully assembled and not as a mob; he was sorry to say that when they got their charters, the fairs proved a failure; he thought the principal cause lay with the farmers themselves in not bringing forward articles to sell.—He thought the farmers would find a great benefit in the present railway movement in connecting them with the Atlantic market. We already find in our county a great advantage in the railroad to Cape Vincent, as American traders had been coming over and buying their produce this season—they had been bringing them kegs to pack their butter in—they had been paying ten pence a pound for butter almost this whole season. But what more decidedly showed the advantage of a railroad, was its raising the market for such a bulky article as hay. Hay had risen in price this last fortnight, in the Kingston market, from five to ten dollars a ton. He had been lately at New York, and on inquiry he found that hay was scarce, and likely to be dear; that immediately on his return home, he sent word to the farmers in the several townships, not to sell their hay for a trifle, as it was going to be in demand, as already the Americans had brought over presses to press it, and were buying and sending it away by the railway. He thought that if some of the leading farmers in each township would meet occasionally, and take into consideration the prices in New York and other markets, and the charges and duties it would cost to take their grain to market, and then give forth reports (something like as Boards of Trade do) of what prices farmers ought to get for their grain, it would be a great benefit to farmers in country places, and though they might not be able to get fairs, the reports they ought to have at all events.

Mr. Wade said, after the very clear manner in which Mr. Sutherland had brought the subject before them, there was very little left for him to say, in the way of summing up, as our circumstances were so very different from those countries of older establishment, what applied to them might not apply to us; there a farmer would never think of doing without his fair and market for grain, here he did not think they would apply so well to grain, he thought they would apply better to live stock. He thought the producer and consumer could hardly ever be brought together, there had always been a middle class between them—this middle-man ought to have a fair living profit—reference had been made to butchers in present circumstances, sometimes they bought very high, and had very small profits, other times very low, and had large profits; fairs, he thought, might have a tendency to equalize prices, teaching farmers better what was really the worth of their cattle.

Mr. Campbell had made some very good remarks about fences that he thought it would be beneficial for the members to attend to. He thought a fair in the Fall would be beneficial, as Mr. Black and others want to buy live stock to fatten with roots; now, a fair then would tend to bring buyers and sellers together, and save some trouble to boot. He thought that so soon as we had a railway fairs would not be of much importance, for if we had anything worth while to sell, buyers would find it out—he was not sure but the day for fairs was gone by. He believed they had few or none on the other side, and business people as they were, he thought that if they had been beneficial they would have had them established; he believed we would find it up hill work to establish fairs if we commenced now, it would take ten years to come to anything, and by that time the necessity for it might be gone by.

It was moved by Mr. P. R. Wright, and seconded by Mr. Samuel Campbell, That the thanks of this Club be given to Col. Cameron, for his courtesy in attending this discussion, and for the clear, sensible, and judicious address which we have listened to with so much pleasure and profit.

A vote of thanks was given to Mr. Sutherland for his introductory essay.

WALTER RIDDELL,
SECRETARY.

—Cobourg Star.

ETOBICOKE AGRICULTURAL SOCIETY.

(For the Agriculturist.)

The first exhibition of this newly formed Society was held at Smith's Inn, Dundas street, on Wednesday last, November 10th; and the commencement was most encouraging. Taken as a whole, the show exceeded our County exhibitions, a few years ago;—186 entries being made in all. The butter and cheese were excellent, there being 31 entries of the former, and Mr. Donald McFarlane placed on the dinner table a specimen of the latter for which he had obtained the first prize; the best proof of its excellence being found in the eating. The stock, implements, agricultural products, &c., were all highly creditable.

This little society originated, not from funds received from the office of the Minister of Agriculture, or any stimulant of that kind, but from a meeting of the farmers of the Township, held less than a month since, when it was determined that Etobicoke should have an Agricultural Society to exhibit the productiveness of her soil and the enterprize of her people. Examples of this kind prove the utility of Agricultural Societies, and the wisdom of the Legislature in extending a fostering hand to all such as in the first place help themselves. Every small society in the remotest part of the country, sooner or later becomes an efficient auxiliary to our great Provincial Association.

OFFICERS:—Mr. Edward Mussen, President; Mr. McFarlane, Vice-President; Mr. T. Cooper,

Secretary; Mr. E. C. Fisher, Treasurer; and nine Directors.

An excellent dinner was provided by Mr. Smith, at which some good and appropriate speeches were made by Mr. Wm. Gamble, and others, and the proceedings terminated in the best possible spirit by the company heartily singing, led by Messrs. Donaldson & Grainger, our noble and patriotic anthem, "God save the Queen."

Toronto, Nov. 12, 1852.

R. L. D.

MR. VAIL'S SALE OF SHORT-HORNS.

As previously advertised, Mr. VAIL's fine herd of Short-horns were sold on the 13th inst., at his farm near Troy. The sale was well attended, and the prices realized speak well for the excellence of the stock, and Mr. V.'s reputation as a breeder. We annex a list of the sales made—embracing the name, age, and price obtained for each animal, with name of purchaser:

COWS, HEIFERS, AND HEIFER CALVES.

1 Yarm Lass, red roan, 2½ years old, sold to Mr. Rebur, of Ohio,.....	\$670,00
2 Yorkshire Countess, 1½ years old, Mr. Rebur,.....	580,00
3 Yorkshire Countess 2d, 6 months old, Mr. Root,.....	315,00
4 Hilpa, 1st, imported, 12 yrs old, Mr. Rebur	320,00
5 Do 2d, 4 yrs old, Gen. Cadwallader, Philadelphia.....	260,00
6 Do 3d, 2½ yrs old, do do.	360,00
7 Do 4th, 6 months old, Mr. Root,.....	260,00
8 Lady Barrington 6th, 4 yrs Gen. Cadwallader,	320,00
9 Do do 7th, 2 yrs old, Mr. Watts	270,00
10 Butter Cup, 5 yrs old, Mr. O'Hara.....	200,00
11 Betty, 7 yrs old, Gen. Cadwallader,....	150,00
12 Do 2d, 4 yrs old, Mr. Baker,.....	110,00
13 Do 3d, 1 yr old, Gen. Cadwallader....	75,00
14 Bellflower, 13 yrs old, Mr. Helcam.....	75,00
15 Laura 2d 3½ yrs old, Mr. Parsons, Canada,	125,00
16 Do 3d, roan calf, Mr. Delany,.....	100,00
17 Cherry, 7 yrs old, S. P. Chapman, Clockville,	100,00
18 Esterville 3d, 14 years old, Mr. Spencer, Westchester Co.,.....	518,00
19 Esterville 4th, 2½ yrs old, Mr. Rebur,....	610,00
20 Willey 7th, 5 yrs Mr. Sleight, Westchester Co.,	270,00
21 Willey 8th, 2 yrs old, Gen. Cadwallader,	160,00
22 Lady Ann, 2½ yrs old, Mr. Parsons.....	130,00
23 Wilddame 6th, 3 yrs old, Mr. Perkins, ..	275,00
24 Eunice 4th, 5½ yrs old, Mr. Baker,.....	125,00
25 Do 5th 1½ yrs old,.....	120,00
26 Aurora 2d, 19 yrs old, Mr. Ingersoll,....	90,00
27 Do 3d, 4 yrs old, Mr. Giles,.....	65,00
28 Do 5th, red and white calf, Mr. Delany,	80,00
29 Cherry 3d, 6 yrs old, Mr. Ball,.....	75,00
30 Do 4th, 1 yr old, Mr. Root,.....	75,00
31 Do 5th, red calf,.....	110,00
34 Blossom 2d, calf, Gen. Cadwallader,....	65,00
35 Lilack 3d, 4½ yrs old, Mr. Sleight,.....	80,00
36 Ella, 4 yrs old, M. G. Bolt,.....	120,00
37 Bellflower 3d, calf, Mr. Birdseye,.....	65,00
53 Blanch Rose, 3d, 3 yrs old, Mr. Morris,..	75,00
54 Skylark, 6 years old, Mr. Parsons,.....	75,00
56 Venus, 1 yr old, Mr. Birdseye,.....	75,00
58 Butter Cup 3d, white calf, Mr. O'Hara,..	50,00
59 Lillock 4th, roan calf, Gen. Cadwallader,	50,00

Total for cows, heifers and calves,.....\$7,525,00

BULLS AND BULL CALVES.

39 Earl Derby, imported bull, 1 year old, bred by Mr. Robt. Bell, on the estate of Earl Derby, sold to Rebur & Kutz, Ohio,	570,00
40 Kirkleavington 2d, 1½ yrs old, Mr. Sleight	380,00
41 Do 3d, calf, Mr. Calkins,...	220,00
42 American Comet 2d, 1½ yrs old, Mr. Root,	130,00
43 Do do 3d, red and white calf, Paoli Lathrop, South Hadley, Mass.,....	125,00
44 Prince of Wales, 1 yr old, Mr. Ingersoll, Pa,	95,00
54 Do do 2d, 1 yr old, Mr. Bullock,..	50,00
49 Prince Albert, 2½ yrs old, Mr. Keck,....	155,00
50 Dairyman, red and white calf, Mr. Parsons,	150,00
51 Bed Rover, red calf, Mr. Birdseye,.....	60,00
52 Trafalgar, red calf, Mr. Morris,.....	110,00
60 Enchanter, red bull calf, Mr. Keese, Essex Co.,	100,00
61 Sir Walter, calf, defective pedigree, Mr. Ingersoll,	20,00

Total for Bulls and Bull calves,.....\$2,165,00

Total sales,.....\$9,690,00

PLANTING SEEDS IN AUTUMN.

We think it quite an object to try a few experiments in regard to the planting of many garden seeds in autumn. We have no doubt that if it be properly done, onions, parsnips, beets, carrots, and several other varieties of vegetables, would do better, so planted, than they now do as planted in the spring.

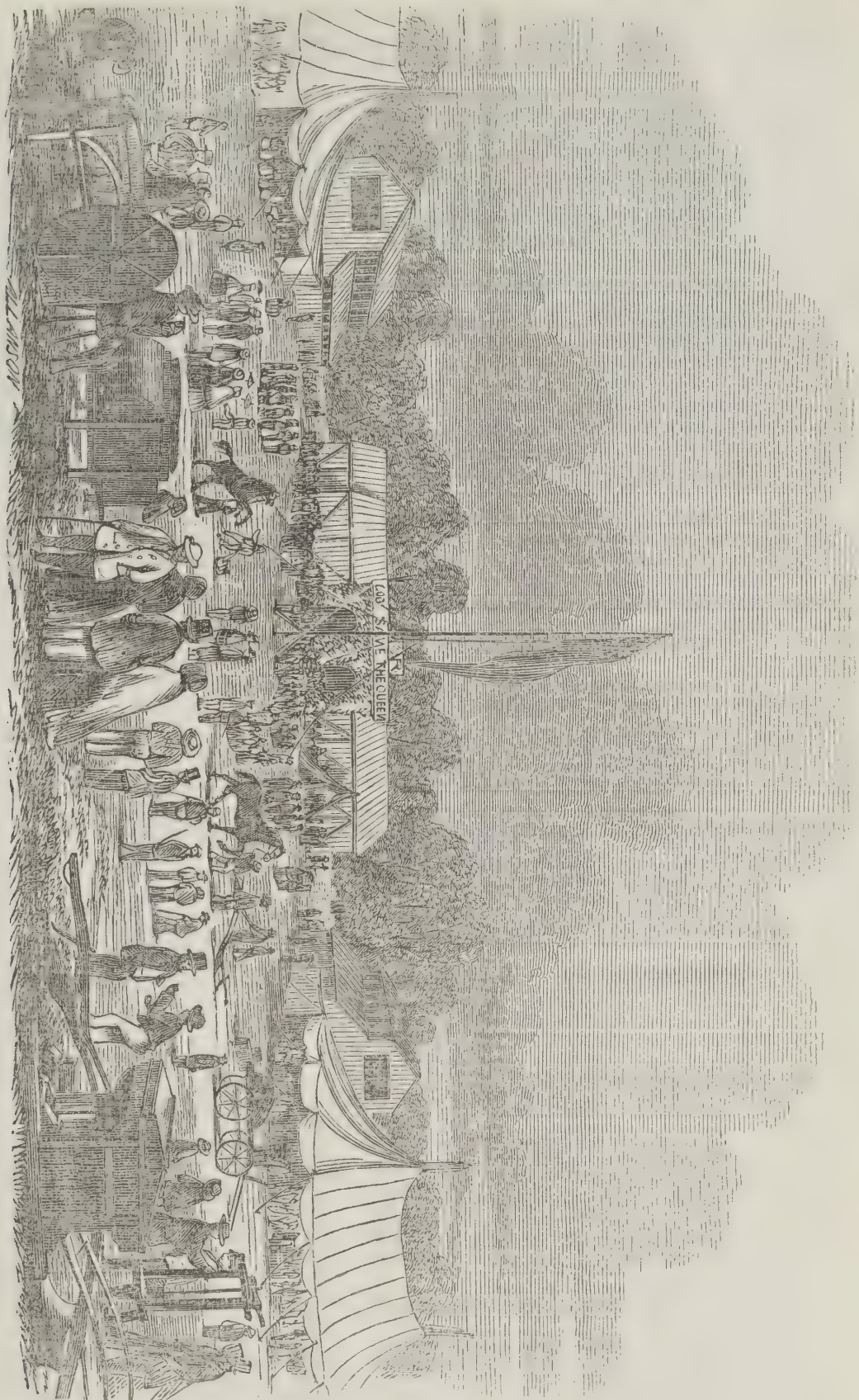
We would like to see the experiment of planting an acre of potatoes so late in the fall that they would not vegetate until the following spring. We have all seen potatoes that have been left at digging time, throw up stalks in the spring following, and produce a good yield.—These instances are only accidental ones, and we do not know what proportion of those left in the autumn actually vegetates—whether they all did or only a part of them.

By planting a known piece of ground, regularly, it would demonstrate more clearly the advantages and disadvantages of this plan.

We clip the following from the German town Telegraph, wherein the writer recommends the fall sowing of onions.

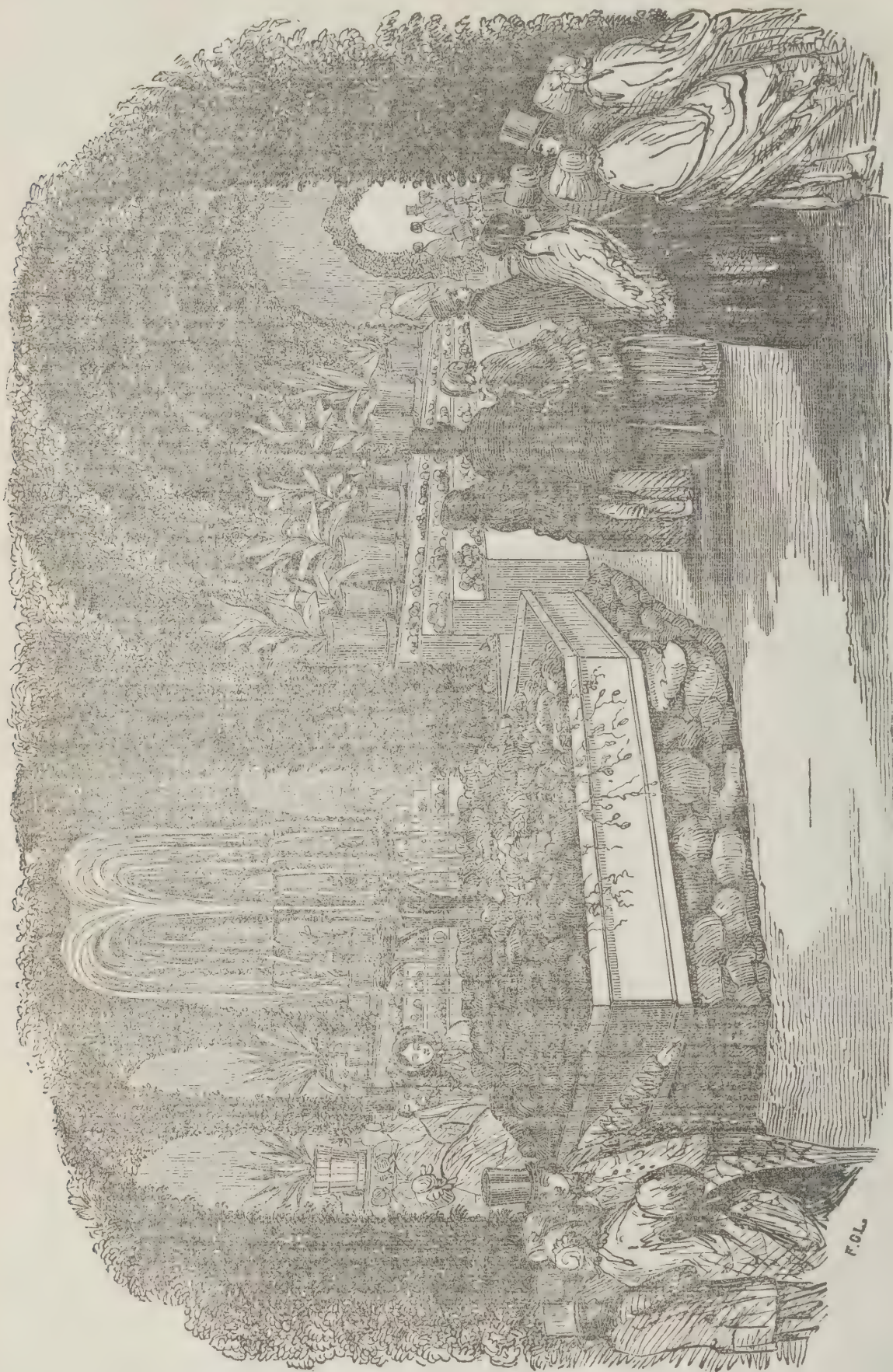
"SOWING ONIONS IN AUTUMN.—The rot or worm in the onion, has of late, in some sections, and particularly in New England, I am informed—the great onion country—rendered the cultivation of this valuable vegetable nearly if not quite as difficult as that of the potato. If the seed is sown in the spring—no matter how early—as it generally is with us, there will be a liability, to say the least, that this disease will greatly injure, if not wholly destroy, the crop. But if we sow in autumn, the roots will rarely be affected by it. This fact deserves to be extensively known, as autumnal sowing is, in my opinion, the only *surely* effectual preventive to be applied. The Yankees, who are universally acknowledged to be "cute" in most everything, now practise this plan almost universally, and with entire success. I throw out the suggestion at this time, hoping that it may be of service to some of my brother farmers who are not aware of the practice, or that any infallible remedy for the worm exists."—*Me. Far.*

VIEW OF THE SHOW GROUNDS OF THE PROVINCIAL EXHIBITION FOR 1852.



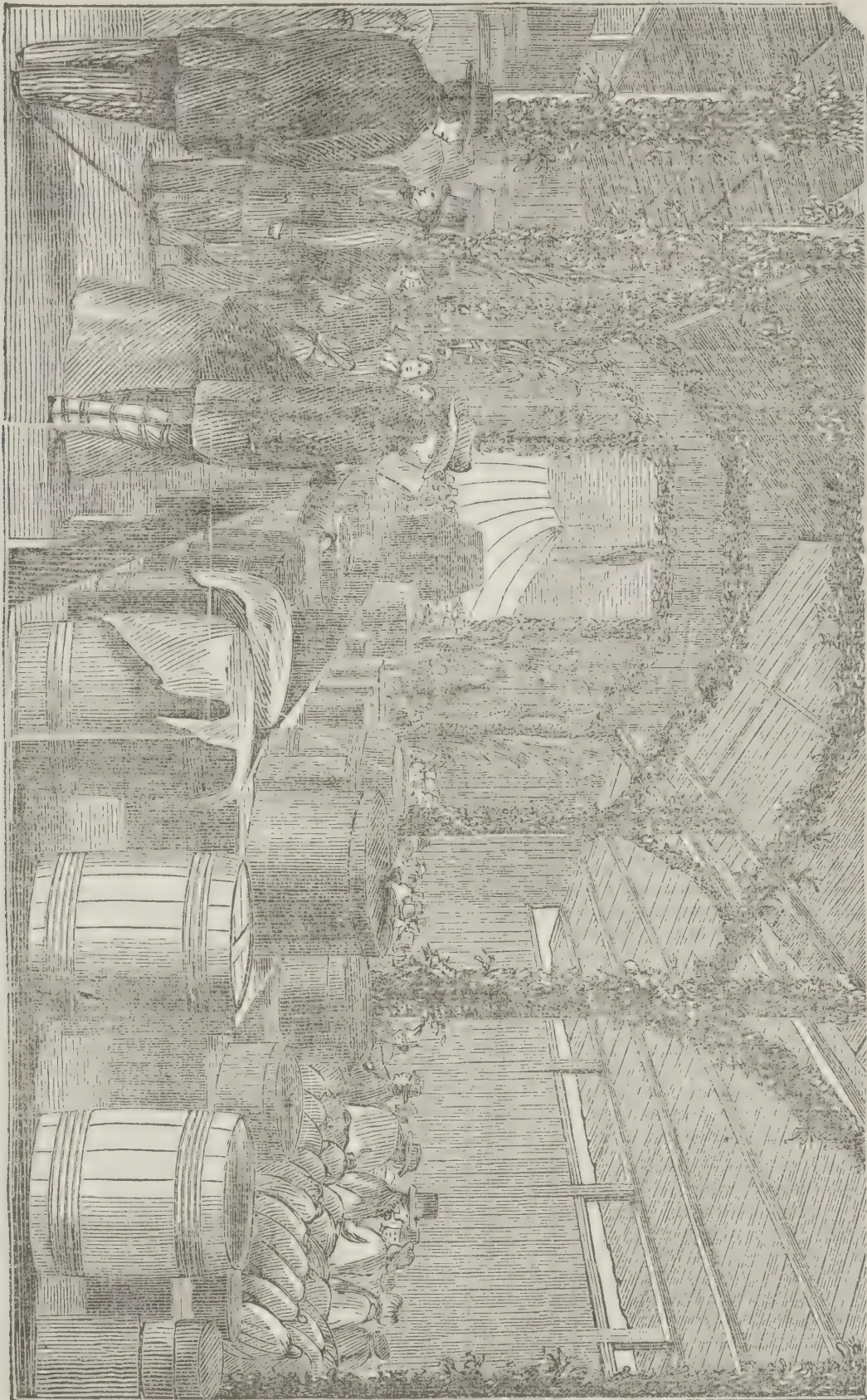
Having in our previous numbers given a very full description of the Provincial Fair held at Toronto this year, we shall not occupy our space with any further letter-press on the subject. The cuts which we present in this number were not sooner at our disposal, nor indeed could we have found room for them in the number containing the Prize List and other matter relating to the fair. The above represents a partial view of the Show Ground, when not crowded with spectators.

FLORAL HALL.—PROVINCIAL EXHIBITION, 1852.



FLORAL HALL was to many persons the most attractive feature of the late Exhibition. The ceiling was decorated with foliage of the hemlock, simply but tastefully arranged. The *Fountain*, in active play was a pleasing novelty. As we gave a very full description of the contents of this Hall in our October number we refer the reader to it.

THE AGRICULTURAL HALL. PROVINCIAL FAIR, 1852.



There were five buildings erected for the late Exhibition, viz., The Agricultural Hall, of which the above is a fair representation; 'The Floral Hall; The Mechanics' Hall; Fine Arts Hall, and a small building which was occupied with School apparatus. Even this number was found to be insufficient for the accommodation of exhibitors. We trust the Association will supply itself with tents for future Fairs. They would prove an immense saving to the funds of the Society.

OPENING OF THE NEW NORMAL SCHOOL.

The chair was filled by Judge Harrison, chairman of the Board of Instruction. On the platform were Mr. Inspector General Hincks, Mr. Chief Justice Robinson, Dr. McCaul, Principal of the University of Toronto, Dr. Ryerson, Chief Superintendent of Education, Rev. Mr. Lillie, Rev. Mr. Jennings, Mr. Ridout, M.P.P. for the city, Mr. J. C. Morrison, M.P.P., and Mr. Treasurer Howard.

THE CHAIRMAN said that it had fallen to his duty, as chairman of the Board of Public Instruction, to preside at this meeting, and the Board were exceedingly gratified with so large an assemblage on the occasion of the inauguration of these buildings which have been fitted up for the purposes of Common School education. It would be out of place for him to make any remarks at this time, and more especially when there are so many gentlemen anxious to make some observations. He would simply state the order of proceeding and the first upon this occasion would be a short and appropriate prayer, after that those gentlemen prepared to make observations will be heard. He would call upon the Rev. Mr. Lillie to open the proceedings in the absence of the Rev. Mr. Grasset, who was appointed to do so.

Rev. Mr. LILLIE offered up a very appropriate prayer.

MR. CHIEF JUSTICE ROBINSON said, *Mr. Chairman*:—It is an event of no ordinary interest that we are met to celebrate. It is now publicly announced that the building which the Province has erected for the accommodation of the Normal and Model Schools, is completed; and has been taken possession of by the officers of the Department. The ceremony by which it has been thought proper to mark the occasion, occurs at a moment when my time and thoughts are unavoidably so engrossed by the judicial duties, in which I am daily engaged, and of which the performance cannot be postponed, that I have found it difficult to comply with the request of Dr. Ryerson that I would take a part, however unimportant, in the proceedings. It would have been more difficult for me, however, wholly to decline a request which I could not but feel that the Superintendent of this most important institution had a right to make, not more on account of the deep interest which ought to be taken in the work in which he is engaged, than on account of the ability and industry, and the unabated zeal with which he devotes himself to the duty. I must hope that from a consideration of the circumstances I have mentioned, you will be disposed to receive with indulgence the observations which I venture to offer, however little worthy they may seem of the cause and of the occasion, and of the spacious and elegant hall devoted to education in which they are delivered. The larger portion of this audience are probably, like myself, not entitled to speak with confidence of the grace and propriety of architectural designs; but it is acknowledged that so far as may be consistent with strength and durability, what the art of the builder aims at is to please,—and to please not those only who can appreciate his difficulties, but the greater multitude of observers who are ignorant of rules, and who when they admire, they know not why, give a strong testimony that one great object of the artist has been attained. I believe I am expressing the general sentiment when I declare my admiration of the handsome edifice in which we are assembled. It would have been inconsistent with the circumstances of this yet new country to have expended much of the revenues necessary for the supply of so many pressing and growing wants, in decorating this structure with the massive columns and elaborate carving which are required for creating an imposing grandeur of effect; but we have here

provided in a style fairly in keeping with the country, and with the object, a large, substantial, and well proportioned building—of durable materials, and yet of light appearance, and in its interior arrangements, I doubt not, perfectly well adapted to its purpose. I have heard it generally spoken of as a striking ornament of the city in which it occupies a convenient and appropriate position, and by whose inhabitants I trust it will come to be regarded in successive generations with growing favor. In my own judgment it does great credit to the taste and talents of the architect, and I wish, for the sake of Mr. Cumberland, that the opinion came from a quarter which could give it value. (Applause.) But these are minor matters. It is to the system of religious, intellectual and moral training, that is to be carried on within these walls that the deeper interest attaches; for we stand now around the fountain from which are to flow those streams of elementary instruction, which while the common school system endures, must be conducted from it into every city, township and village in Upper Canada,—I might almost say conducted to every farmer's, mechanic's and laborer's dwelling; for the law has provided amply and certainly for placing, at no distant day, the education which can be obtained in this Normal School, within the easy reach of all. There will be no impediment from distance, no difficulty from straitened means; the most densely crowded quarters of our towns, and cities, and the remotest corners of our rural districts, will be sure to have their school houses, their teachers, their books and their maps. Whoever reads the common school acts and considers the provision which they make for sustaining and diffusing the system of instruction which they authorise, will see that its effects must inevitably pervade the whole mass of our population. And at what a time is its efficiency about to be felt! I speak with reference to the impulse given to agriculture and commerce, the spirit of enterprise called forth by the improvements in science, and the remarkable proofs which we are witnessing of the vivifying influence of increased population and of increased wealth. It would be difficult, I think, to point out a country in which at any period of its history the results of such a system could have deserved to be regarded with greater interest—or watched with more intense anxiety. It is not only the city which this building adorns that is concerned in these results,—not merely the surrounding County whose inhabitants will enjoy more convenient access to this institution—not Upper Canada alone for the Lower portion of the Province is scarcely less directly interested in whatever must influence the composition, and acts, and counsels of a government and legislature common to both. We may say with truth, that the interest even extends much farther. It is common for us to hear of that great experiment in government in which the vast republic near us is engaged. The world, it is said, has a deep interest in the result, and none it is most true, have stronger motives than ourselves for wishing that the experiment may prove successful in attaining the great objects of all good governments, by preserving order within the boundaries of the country governed, for it is unfortunate to live near unruly neighbours, foreign or domestic, and unsafe while we happen to be the weaker party. But in Canada, and the other Provinces of British North America, we have an experiment of our own going on, in a smaller way to be sure, but still on a scale that is rapidly expanding—and an experiment of no light interest to our glorious mother country, or to mankind. We occupy a peculiar and a somewhat critical position on this continent, and more than we can foresee may probably depend upon the manner in which our descendants may be able to

sustain themselves in it. It will be their part, as it is now ours, to demonstrate that all such freedom of action as is consistent with rational liberty, with public peace, and with individual security, can be enjoyed under a constitutional monarchy as fully as under the purest democracy on earth—to prove that in proportion as intelligence increases what is meant by liberty is better understood, and what is soundest and most stable in government is better appreciated and more firmly supported. The glorious career of England among the nations of the world demands of us this tribute to the tried excellence of her admirable constitution: it should be our pride to shew that far removed as we are from the splendours of Royalty and the influences of a Court, monarchy is not blindly preferred among us from a senseless attachment to antiquated prejudices, nor reluctantly tolerated from a sense of duty or a dread of change; but that on the contrary it is cherished in the affections, and supported by the free and firm will of an intelligent people, whose love of order has been strengthened as their knowledge has increased—a people who regard with loyal pleasure the obligations of duty which bind them to the Crown, and who value their kingly form of government not only because they believe it to be the most favourable to stability and peace, but especially for the security it affords to life and property, the steady support which it gives to the laws, and the certainty with which it ensures the actual enjoyment of all that deserves to be dignified with the name of freedom. As soon as the Legislature of Canada determined to apply so large a proportion of its revenue to the support of common schools, it became necessary to the satisfactory and useful working of the system that an institution should be formed for the instruction of the teachers, and it was a great advantage that before the circumstances of this country first called for such a measure, and rendered its application practicable on a large scale, the efforts of many enlightened and judicious persons in other countries had been for years directed to the subject; and all the questions of discipline, distribution of time, methods of imparting knowledge, subjects of instruction, and the extent to which each can be carried, had engaged the attention and had stood the test of experience. Many valuable books had been compiled expressly for the use of such schools, and great care and diligence had been used in making selections from the abundant stores of knowledge already available. And so far as those political considerations are concerned, which it would be culpable ever to lose sight of, we can fortunately profit without hesitation by all these important aids, being bound by the common tie of allegiance to the same Crown, and having the same predilections in favour of British institutions as our fellow subjects of the United Kingdom. Without such a general preparatory system as we see here in operation the instruction of the great mass of our population would be left in a measure to chance. The teachers might be many of them ignorant pretenders, without experience, without method, and in some other respects very improper persons to be entrusted with the education of youth. There could be little or no security for what they might teach, or how they might attempt to teach, nor any certainty that the good which might be acquired from their precepts would not be more than counter-balanced by the ill effects of their example. Indeed the footing which our common school teachers were formerly upon, in regard to income gave no adequate remuneration to intelligent and industrious men to devote their time to the service. But this disadvantage is removed, as well as other obstacles, which were inseparable from the condition of a thinly peopled and uncleared country, traversed only by miserable roads, and henceforward,

as soon at least as the benefits of this great Provincial institution can be fully felt, the common schools will be dispensing throughout the whole of Upper Canada by means of properly trained teachers, and under vigilant superintendence, a system of education which has been carefully considered and arranged, and which has been for some time practically exemplified. An observation of some years has enabled most of us to form an opinion of its sufficiency. Speaking only for myself, I have much pleasure in saying that the degree of proficiency which has been actually attained goes far, very far beyond what I had imagined it would have been attempted to aim at. It is evident, indeed, that the details of the system have been studied with great care, and that a conformity to the approved method has been strictly exacted; and I believe few, if any, have been present at a periodical examination of the Normal School without feeling a strong conviction that what we have now most to hope for and desire is, that such a course of instruction as they have seen exhibited should be carried on with unrelaxed diligence and care. Of course, I shall be understood to be speaking only with reference to those branches of knowledge which formed the subjects of examination. There is, we all know, a difficulty which has met at the threshold those who have been influential in establishing systems of national education; I mean that which arises from the number of religious sects into which the population is divided. This is not the occasion for entering into any discussion upon that painfully interesting question. Whatever difficulty it has occasioned in England or Ireland must be expected to be found here, applying with at least equal, if not more than equal force. I should be unwilling to suppose that any doubt could exist as to my own opinion on this question; and scarcely less unwilling to be thought so unjust and uncandid as not to acknowledge and make allowance for the difficulties which surround it. They are such, I believe, as no person can fully estimate until he has been called upon to deal with them, under the responsibility which the duties of Government impose. In the mean time, resting assured, as we may, that no general system of instruction can be permanently successful which has not the confidence and cordial approval of the sincerely religious portion of the community—that portion, I mean, who will think it worse than folly to aim at *being wise above that which is written*—we must wait with hope and patience for the solution which this difficulty to which I allude may receive in other countries more competent to grapple with it—trusting that what may ultimately be found to be the safe and satisfactory course may, by the wisdom and good feeling of the majority, be adopted among ourselves. When conflicting opinions upon this subject shall have been reconciled so as to secure the full confidence and approval of those who are not indifferent to religious duties and considerations, it may be hoped that the system which is now being matured may arrive at that state of perfection, in regard to the regulations connected with it, that the Legislature may be able to leave it to operate from year to year without disturbance or material change, so that all classes may become familiar with its working, and that a feeling of attachment to it may have time to form before all associations connected with the subject shall be broken up by the introduction of a new machinery. For it is not under such disadvantages that institutions like this can do their work. They require to be able to pursue their course of daily duties in peace, and free from the distraction of uncertainty, and the agitation and anxiety of change. (Applause.) I close these observations by again adverting to the very remarkable period in the history of this Province at which the Normal School of Upper Canada has taken possession of its magnificent home. We are advancing with a rapi-

dity that surprises ourselves, scarcely less than the people of other countries who have been suddenly awakened to the truth of our astonishing, but inevitable progress. It was but a few weeks ago that I read in the *Westminster Review*, one of the leading English periodicals that deals most frequently with Colonial subjects, an article written expressly for the purpose of impressing upon the British public a due sense of the importance of the North American Provinces, and of the great interests which with surprising rapidity are springing up within them, and claiming the attention of the mother country. In order to give force to his statements, the writer of this article speaks of it as a fact, which he evidently supposes will take his readers by surprise, that the British North American Provinces contain among them a population of not less than 1,700,000 souls; not imagining that by authentic returns which had been published some months before he was writing, Canada alone contained nearly 150,000 more people than he gave credit for to all these Provinces,—and that in speaking of the whole collectively as he did, with the full purpose of saying as much as he could honestly say for their importance, he had sunk in his statement about 800,000 of their actual population. In all of these extensive Colonies of the British Crown, distinguished as they are by a loyal and generous appreciation of their position as a portion of the British Empire, the same spirit of enterprise is at this moment in active employment with the aid of singular advantages, in developing their great national resources. Every thing that we see and feel at the present time, or can discern in the future is full of encouragement to the farmer, the mechanic and the laborer,—and as for the liberal professions it is impossible that they can languish among a prosperous people. When it was proposed to unite the Provinces of Canada, the scheme first submitted to Parliament was to confer municipal institutions by erecting in the whole territory five great District Councils for the municipal purposes, with power to a very considerable extent of controlling the action of the Provincial Legislature. But this suggestion was wisely, I think, abandoned, for these five Councils would have constituted so many *little*, but not *sufficiently little* Parliaments, inconveniently clashing with the Provincial Legislative body. In place of these we see established in our numerous counties, townships, cities, towns and villages, councils which better comport with the idea of purely municipal corporations occupying themselves in improving the material and social condition of their respective localities, and smoothing, if I may so express myself, the asperities of a rough—because a new country. That these corporate bodies may know how to use, without abusing their powers it is indispensable that the great body of the people by whom they are elected should be intelligent and well disposed—able to distinguish between the evil and the good, not in morals only, but in what we may call in some degree matters of policy and government. Nothing can ensure this but early discipline, and early and sound instruction. It is true that a little learning may in some cases do harm rather than good to the individual who possesses it, and may make him a less valuable, because a more dangerous member of society than he might have been without it. But these are exceptional cases. It would be as wise to reject the use of railways because an occasional train runs off the track, as to hesitate to give education to the multitude for fear it may in some instances be perverted, as no doubt it will be to bad purposes. But in truth this question is now decided in every free country, and speculations about the comparative advantages of promoting, or neglecting education would be a useless waste of time. The multiplying calls for intelligence in the varieties of employment

which are daily increasing—the wonderful cheapness and facility which improvements in the art of printing have given in the production of books and newspapers, and the quickened circulation of intelligence, which we derive from liberal postal arrangements and the magic wonders of the telegraph, must make the necessity of being able to read and write so great, and the desire so nearly universal, that the few who may remain without such instruction will be made to feel the marked inferiority of their position. And soon it will be literally true that in Upper Canada there will be no excuse for any person endowed with ordinary capacity, being found in a condition so degrading to a free-man, and so unsuitable to an accountable being. With everything to urge and to tempt them to the acquisition of knowledge, and everything to aid them in obtaining it, it will be impossible that the people of Canada can do otherwise than feel that in their case emphatically “*poverty and shame shall be to him that refuseth instruction.*” It must take time, no doubt, before the prevailing influence of education can be so fully felt. The dispersion through so large a country, of a sufficient number of well qualified teachers by the instrumentality of this Normal School, can not be instantaneous. Various circumstances concur to limit the number pressing forward in each year to avail themselves of its advantages—but the advance will still be rapid. It will be a quickly multiplying process.—every well-informed and well-trained teacher will impart what he has learned to many, who in their turn, though they will not all be teachers, will all contribute in some degree, by what they have acquired, to raise the general standard of intelligence—crimes and vices, no doubt there will be, while there are men born with impetuous passions and with weak understandings; but the number of offences must be diminished, for there will be fewer to countenance, and more to reprove them. But I have already detained you too long. We shall have, I hope, from the Rev. Superintendent, and from other gentlemen, some interesting details of the system and progress of the Normal and Model Schools, which have been founded by the Legislature on so liberal a scale, and are to be henceforth so admirably accommodated. And I am sure you will heartily and sincerely unite with me in the wish that they may become powerful instruments in the hands of Providence for advancing the welfare of this Province, and promoting the temporal and eternal happiness of its people. (Great applause.)

HON. MR. HINCKS rose amidst great applause. He said, Ladies and Gentlemen, I have seldom found myself in a position of greater embarrassment than I do on the present occasion, having to follow a gentleman of the learning and eloquence of the learned Chief Justice, who has just addressed you. I feel particularly embarrassed on the present occasion because I am under the necessity of saying that I present myself before you totally unprepared to address you in that manner which you have certainly a right to expect from the announcement made in connection with this opening ceremony. When the Rev. Superintendent of Education spoke to me in Quebec, two or three weeks ago, upon the subject, I had no idea that I should be called upon to do more than to move a resolution. He then stated to me that this building was to be opened, and was kind enough to invite me to take a part in the proceedings. I felt not only from the interest I have taken in Common School Education, but from the position which I occupy, that it was my duty to avail myself of the opportunity of being present at such a ceremony. I feel that it is the duty of members of the Government to endeavor to be present upon occasions like this, and I only regret that since I have been a member of the Government, I have been so seldom able to avail

myself of meetings of a similar character to the present. The responsibility of my want of preparation must rest with the Rev. Superintendent, but I have not the slightest doubt that he will be able to give a full explanation of the system which will be pursued here, and I am sure no one is more capable than he to give such an explanation. My own remarks will be brief indeed, for since my arrival in town it has been impossible for me to arrange my thoughts upon the subject. As my worthy friend the chairman has said I have taken an interest in the various bills which have been introduced upon the subject of Education. I may say with regard to this as well as to our Municipal and our assessment laws, and other great measures, I am one of those who think that we cannot arrive at perfection at first. It requires the practical experience of the people themselves in the working out these systems before we can reach anything like perfection. All the various measures introduced upon the subject of Common School Education, have been improvements upon the measures that have preceded them. (Applause.) and I certainly think that the friends of the system of Education which has prevailed in this Province must feel proud upon the present occasion, for this is a great triumph to their principles this evening. There has been a great deal of opposition to anything like a system of education, from persons who have not given so much attention to the subject as those who have matured this measure. There has been much alarm expressed by many people that there was too great a system of centralization aimed at, and a great deal of opposition has been manifested in consequence. I have never been an advocate for the system of centralization; but I believe our system has been managed in such a way that no offence can be taken at it. It has been worked in such a way as to give advice rather than to coerce the people. A great deal of power has been left with the people, and the Chief Superintendent has rather endeavored by moral influence to induce the people to adopt the same system of education, and the same school books, &c., that there might be as uniform a system as possible throughout the country. (Applause.) It is impossible without central organization of this kind, that the necessary statistics can be obtained, or a correct view given of an educational system, and I believe a great deal of good must result from the obtaining of these statistics.—With regard to this institution so far, it has been most successfully conducted, and I feel bound to say that we must attribute all the merit of that success to the Rev. gentleman who has been at the head of our Common School system. (Great applause.) It is only due to that Rev. gentleman that I should take this public opportunity of saying, that since I have been a member of the Government, I have never met one individual who has displayed more zeal, or more devotion to the duties he has been called upon to discharge, than that Rev. gentleman. (Great applause.) A good deal of opposition has been manifested, both in and out of Parliament, to this institution, and a good deal of jealousy exists with regard to its having been established in the City of Toronto. I can speak from my own experience as to the difficulties experienced in obtaining the co-operation of Parliament, to have the necessary funds provided for the purpose of erecting this building. I will say, however, that there never was an institution in which the people have more confidence that the funds were well applied than in this institution. There is but one feeling that prevades the minds of all those who have seen the manner in which this scheme has been worked out. In regard to the school itself, the site has been well chosen, the buildings have been erected in a most permanent manner, and without any thing like extravagance,

and I have no doubt, there will be no difficulty in obtaining the additional Parliamentary aid necessary to finish them. I feel, Ladies and Gentlemen, that I must again apologize for the total want of preparation. The hon. gentleman sat down amidst applause.

Dr. McCaul said, in addressing a few observations he would follow the example set by the hon. gentleman who had just sat down, as far as brevity is concerned, not merely because it was desirable after the address already given but because no intimation had been given him until a short time since that it was expected he should appear before them. He would commence on this occasion by congratulating the Chief Superintendent of Education the members of the Council of Public Instruction and all connected with Toronto, on the success which has attended their exertions. The building itself is a credit to the city, and to the architect, and as we look around upon this beautiful theatre, and bear in mind the commodious arrangements which have been made throughout every part of the buildings, we cannot but feel satisfied that the remark has been well made by the Inspector General, — that you can find no instance in which a sum of money has been better employed than in the erection of this pile of buildings, whose inauguration we are now celebrating. But what, he would ask, is the chief thing which gives interest to this meeting? It is not the pile of buildings, not the rooms, however highly finished and provided with all the advantages for the successful carrying on of instruction,—It is the work that is to be carried on, and this alone,—a work second in importance to none in the province, for it impresses its holy influences on all successive generations.—Education impresses its stamp not only for the time but continues indelible from one generation to another,—so that whatever be the impress on the national character of Canada, it will be traced to that system of instruction brought forward in 1841 and spread throughout the country by the agency of this Normal School. This work refers not merely to preparing teachers, by giving them the necessary literary and scientific qualifications, but also in its teaching them to teach—a most important distinction. Because, in the experience of those best acquainted with this subject, it is not the best scholar, not the man of the greatest information that is best qualified to communicate it. It frequently happens that those who have the highest qualifications are the least qualified to be effective teachers—hence the necessity of the Normal School with its drill and discipline. It is truly said that the aptitude to teach is the gift of nature, yet nature's gifts are often rendered more available by discipline, and the ability to communicate knowledge derives polish from the discipline applied to it in a Normal School. How important is it that teachers should be prepared for the work upon which such immense consequences depend, and if they are well qualified it must raise the character of teachers individually and of the profession generally. He conceived that there was not previously that attention paid to the importance and to the dignity of the teacher that should have been paid. In other respects how carefully do people act, and yet persons would trust their children, whose happiness here and hereafter were dependent on their teaching, with persons whose competence for the task they took no trouble to ascertain, and to whom they would not give even a sufficient remuneration. These things have happily been remedied. [Applause.] Of what consequence to the community is this wide diffusion of knowledge? What influence will the spread of education have in elevating the tastes and in repressing low and debasing habits? And Oh! how many are there who if they had but

the avenues of enjoyment opened up to them which education presents, would not have so easily fallen into the debased and grovelling habits which have ruined themselves and their families. But in another respect too the diffusion of education must exercise a most important interest throughout the country. We live in times when the tendency is to a diffusion throughout the masses, of a greater amount of political privilege than has hitherto been usual. The times exist when the majority of the people must exercise political privileges, [Applause.] and if so, of what immense importance is it that the masses should be educated—that they should be placed in such a position that they should know their independence and understand their rights—that they should possess that power which education can alone give of protecting themselves against religious and political impostors. The learned Chief Justice has referred to the advantages which we enjoy under our form of government. Of what consequence that the people should be able to show that they maintain their allegiance to the British Crown, and their adherence to the limited monarchy under which we at present live, not through any antiquated prejudices, but because with the choice of another form of government on the opposite side—and I underrate not the advantages of that system, for there are many things we might safely imitate—but from the conviction that under a limited monarchy such as that of England, they can enjoy all real advantages and all real individual liberty for themselves and for their children, that under it they can have happiness here, and the means and opportunity of preparing themselves for happiness hereafter. (Great applause.) So far as he had spoken, (he said,) he had referred to the diffusion of intellectual and moral education. There is one important element which he would briefly notice, with reference to religious education. His Lordship the Chief Justice touched upon it slightly and delicately, and with that caution which the delicacy of the subject required, and that skill which characterizes everything which falls from that learned gentleman. (Applause.) In referring to the subject, he (Dr. McCaul) had no hesitation in expressing his opinion that one of the features connected with the Normal School which he most admired was, that provision is made for religious instruction. [Applause.] The difficulties of this question arise from the diversity of opinion in the Province on such subjects. He had ever found that the man who most conscientiously held his own opinions will yield the most readily to the conscientious scruples of his neighbour, and no man is more likely to offend his neighbour than the man who does not hold his opinions conscientiously. How, then, in such circumstances, is religious education to be conducted? Not by the omission of religious teaching. Some persons believe that no system of education ought to prevail in which the persons who carry it on do not communicate religious instruction. Others believe that secular education might be communicated by one party, and that religious instruction should be given by others whose province it is to communicate such instruction. One point is of consequence, and he thought it is often lost sight of—that is, in whatever way this is to be accomplished, whether the religious instruction is to be given by the same persons who teach the secular subjects or not, there is no party whatever, whose opinion is worth listening to, that does not believe that religious instruction is indispensable in some way. There may be some that press one view, some the other view, but we have not yet, thank God! reached the point of dispensing with religious instruction; and he thought it of the greatest importance that this scheme is based on the union of religious with secular education. When he considered

the advances already made in Common School education in this Province, and the number of competent teachers sent out from the Normal School, he could not but feel that there was a prospect of the realization of that hope he had long entertained, that there yet would be attained in this Province what he regarded as perfection in the system of public education under public grants. He conceived that means would be provided by the public funds to enable the successful but indigent scholar to pass through the successive stages of education, until he reached his profession, and there developed the abilities God has given him. (Great applause.) That he conceived to be the perfection of national education—that which places the humblest man, in so far as his children is concerned, in a position equal to that of the man of the greatest means. They all knew many who have sprung from that class, who have done honour to England, and he doubted not that ere his own career is closed, he would see many grace the highest stations in the Province who have been originally educated at the Common Schools by the public funds—who have proceeded from the Common School, where they received free education, to the Grammar School, and from that to the University, where, by means of the scholarships provided by that Institution, they might qualify themselves for a successful professional career, and by their own ability and their own industry, with the blessing of the Almighty, enrol themselves as members of that aristocracy of talent and learning, which, though it derives no borrowed light from ancestral honour or hereditary wealth, yet shines with the purer and brighter beams which emanate from the self-reliance and independence, that characterise the man who is the maker of his own fortune.

Dr. RYERSON rose amidst applause. He said it was not his intention to make any observations on the present occasion. He felt that it was the duty of others to speak, and it was the province of the Council to present the result of their joint labours. But as allusions have been made to himself personally, which lay him under deep obligations, which embarrass him most deeply, in the attempt to make any observations, and, of which he felt himself entirely unworthy, and which cannot otherwise than afford the most grateful feelings of the heart that his humble exertions are so highly approved by those whose good opinion is worth his highest ambition to deserve, he felt called upon to make a few explanatory remarks. The Inspector General has observed that he understood that certain resolutions were to be proposed, and that all that he was expected to do was to move or to second one of these. That idea was suggested, but first thoughts are not always best, and when they endeavoured to reduce the idea to practice, they found it impossible to put the resolutions into the hands of those gentlemen whom they most desired to address the assemblage, unless they brought some expression of praise to the Council. They therefore endeavored to ask certain gentlemen to address the assembly, leaving them to offer such remarks as might best agree with their own feelings and judgment, or to their own conception of the occasion. He thought this course had been found most appropriate, and although it has imposed upon the Inspector General a difficulty he did not anticipate, yet he thought they would all agree that whether prepared or not, whether he has had time or opportunity to prepare himself for the present occasion, or whatever the circumstances in which he comes before the public, he comes as a man of business, ready for the work assigned to him. The business character of the observations made by the Inspector General had given them a great value which any mere retirement or longer opportunity to prepare would not have enhanced. He felt a degree

of disappointment that one or two gentlemen whose names were publicly announced, were absent. He had an engagement that if health permitted, Sir Allan Macnab would be present to take part in the public proceedings, and as he had not arrived this afternoon, he (Dr. R.) was painfully apprehensive that indisposition has deprived us of his presence, and observations. Although thus sustaining a loss, they had acquired a gain which they all would deeply appreciate, and which he more highly appreciated from the cordiality with which they had received the present address from the President of the Toronto University, Dr. McCaul. He would only further add in regard to matters of detail that they had found it impossible from the limited accommodation of the theatre to afford seats for all who desired to be present; but although they had not been able to accommodate all, they had done the best they could. (Applause.)—This institution stands forth as in some respects the personification, or the mainspring of that system of public instruction, which has extended its ramifications throughout every part of the Province, and he thought the results at which they had arrived would justify the delay which has occurred in the commencement of these buildings. Though he had given as much attention to this subject as ordinary persons yet when this task was assigned him, he felt most entirely unprepared to incur the responsibility without further observations, further enquiries, and further investigation, and he was satisfied that but for these previous enquiries, they would never have arrived at their present position. The erection of this building alone is a sufficient justification of the course which has been pursued. Had he not visited the various Normal Schools both in Europe and America, he could not have formed a proper conception of the adjustment of the various parts, and the proper arrangements in a structure of this description. The expenditure, which has been incurred, is a sufficient illustration. He understood from a gentleman recently from New Brunswick, that the Legislature there had appropriated £30,000 for the erection of a Provincial Normal School. This sum has been expended and this building does not in the slightest degree compare with those which we have erected for little more than half that sum. This arose from the careful preliminary enquiries which had been made, and the very saving of that sum is a sufficient justification for the delay, and he would say farther that they never would have attained to this proficiency had it not been for the clear, comprehensive, and quick conceptions which are characteristic of the intellect of the architect of this building. He (Dr. R.) only found it necessary from time to time, in submitting the details to tell him what he wanted, when his acute mind instantly seized it, and suggested some convenient mode of carrying it into effect. He felt himself under the greatest obligations to the ability and generous co-operation that he had received from Mr. Cumberland, the architect of the building—a building which will stand as a lasting monument of his taste and skill, as well as of the liberality of the Legislature which made the grant for its establishment. [Applause.] Allusion has been made by the chairman to the establishment of a system of public instruction. The first bill was introduced by the chairman himself. Another bill was introduced two years afterwards by the Inspector General, and subsequently another prepared in 1846 was merely a perfection of that, and the present law is an improved conception of all the previous. The first law however has not been changed; but the subsequent bills have been merely supplying deficiencies which the progress of the system rendered necessary. While the Inspector General had been pleased to refer in a

complimentary manner to himself [Dr. R.] he had much pleasure in saying that although he had more to do with the Inspector General than with any other public man, yet he had never found him refuse any proposition that was fairly submitted to him, and reasons satisfactorily explained. He would say that from the time he first took charge of this department he had made various applications for pecuniary aid and he had never yet been refused one single recommendation, he had never been denied a farthing he had asked from the Legislature. He had been assisted in every possible way and to the utmost extent, that each successive government was able to assist him. In regard to the estimate originally made for the establishment of a Normal School, and submitted to the Legislature by Mr. Draper, it was intended merely as an experiment. Mr. Merritt said it was entirely too small for the purpose proposed, and Mr. Baldwin rose in his place and stated that the sum of £1,500 was altogether too little. But the Attorney General said that the estimate had been made and he was not prepared to ask a larger sum. The Normal School up to the present time has been carried on at the original estimate made for its support. We have acted upon a small scale at first that the country might see the adaptation of the system, that upon that ground we might come at a future day and ask for a further appropriation. That period has arrived. We feel it necessary to say that in the new buildings we shall require a larger sum for its annual support than we have received heretofore, and he was prepared to meet this. There are some who are in the habit of instituting invidious comparisons between Upper Canada and the United States, but he was prepared to meet these persons, and would say that we are prepared to carry on the Normal School in Upper Canada to an extent, and with a comprehensiveness of instruction far beyond that which exists in the neighboring State of New York, and at a much less expense. The Legislature of New York has appropriated \$10,000 for the support of their Normal School. That includes 90 pupils in the experimental school and two weeks practice of teaching. The school is built in one of the streets of Albany, and surrounded by no grounds whatever. We have grounds to the extent of several acres. We have an acre and a half for a botanical garden, half an acre for an experimental vegetable garden, we have a model school with from 400 to 600 pupils.—We are prepared to teach as large a number of pupils as in the school at Albany, and we have as large a number at the present time, and we have had 140 applications within the last week. We are prepared to conduct all these operations \$2000 a year less than they conduct the school at Albany without these advantages. He would say that the only instance in which there has been an excess of expenditure beyond the original grant is in the erection of this building. When you look at the extent of it, and go through the ample school rooms in connexion with it, and consider that the ground has been levelled and drained, and the entire building completed and furnished for £17,200, he thought every one would say that there is not perhaps so cheap a building on the whole continent of North America. He had stated that there was in connexion with this Institution grounds to illustrate the whole course of instruction given in the school by the operations carried on in the neighbourhood of the building. Every one will appreciate the additional advantages young persons will have in going forth to various parts of the country, so far acquainted with botany and with the elements of Agriculture, as to afford useful and entertaining conversation to the agriculturists among whom they may associate. The tastes and feelings and social advantages of the country will be advanced by

examples of this kind. There is not an Institution in North America in which these accompaniments are connected with any Normal School, although every writer on the subject has spoken of the great advantages that would result from such accompaniments. These subjects have been carefully considered, and have been reduced to practise, and we shall be able to carry them into effect by the small addition of £500 to which he had referred. He had seen it remarked in a paper of this city published this morning, that the Normal School has not accomplished the object aimed at. That remark has been made in the absence of information, in the absence of evidence, and in contradiction of existing fact. The Dr. here referred for a refutation of the rash and unfounded statement, to the appendix of the last annual report. He referred also to the great demand made for teachers from the Normal School. He alluded to the improvements in text books and other things, and said that he could not have accomplished so much except for the valuable assistance received from those associated with him in the Council of Public Instruction. He did not therefore take the credit to himself, but wished to divide it with those who by a gracious providence had been associated with him. He said allusion had been made to the religious question. That question he would not shrink from. He had avowed from the beginning that he thought every system of education worthless which did not recognize the christian religion as the basis of all dignity and honor. [Great applause.] He would be the last to support an institution of this kind did it not include a provision for religious instruction, and he would appeal to the past as a proof that the young people have felt themselves as much improved in their religious feelings as in their intellectual qualifications. For this they are indebted to the clergymen of the several persuasions with which they are connected. The principle adopted is to ascertain the particular denomination to which each pupil belongs, and return to each clergyman the names of all those who have entered belonging to his denomination, and over whom he is expected to superintend. The clergyman attends every Friday afternoon to communicate religious instruction to those under his respective charge, and those students are also required to attend at least once every Sabbath the church to which they belong, and strict inquiries are made in regard to that as well as to every other exercise. A doubt had been expressed by some, that clergymen would not attend to that duty; but experience has shown that that doubt is without foundation. That duty had been readily and voluntarily attended to, and he would state that the religious improvement of the young people has been, he believed, equal to their intellectual improvement, so that they had gone forth to their work with stronger religious feelings, as well as higher literary and scientific qualifications. While, therefore, there is not a tinge of sectarianism in our system, we do recognise religious instruction as an essential element in our Normal School instruction. We have no sectarianism mingled with it, however. There is no religious instruction given unless by the ministers of the several persuasions, and it is, therefore, to the sects we are to look for the religious education of our teachers, as well as for the salvation of our country, and to repudiate instruction by the different religious denominations is an avowal of infidelity. He had, therefore, no reserve on this point in regard to the Normal School. The same principle lies at the foundation of the whole religion of the country. The clergy of the country are the proper instructors of the youth of their respective persuasions, and, he thought, all would agree with him that it is the duty of each of these persuasions to provide for the religious instruction of its young. That is the basis, the

general principle, and the philosophy of our system of elementary education in this country; and so far from its being anything like an infidel system, we do avow Christianity as the basis of our system, and God forbid! that any other principle should obtain in this country. He would only add, that during his connexion with this institution, he felt himself under the greatest obligation to those connected with him in the Council of Public Instruction. His most earnest desire was that the institution, the opening of which they were now celebrating, may send forth to various parts of the country a class of teachers to which he would be proud to look. The Dr. then complimented the Chief Justice very highly, and expressed the hope that he would be long spared to bless the country with his talents. The happy results they had reached would not (he said) have been attained, however, without the assistance of able masters, especially of the amiable and talented head-master of the Normal School. [Applause.] For any superior ability that the teachers may possess, or for any skill they may manifest in their various schools, they are indebted, not to him (Dr. R.), not to any of the members of the Council of Public Instruction, but to the Masters of the Normal School. The selection had been fortunate, and he thought that the arrangements made for the time to come will make the system even more efficient than hitherto. The Dr. alluded to the jealousy which existed as to the system of centralization, and said that in no State of the Union had the Superintendent of Education so little power as he personally had. As regards the location of the buildings, it was evident that they must be somewhere, and the same objection might be taken to any place that was taken to their being located in Toronto. The Dr. in conclusion, alluded to the claim which the Normal School had upon the Corporation for side-walks and a proper approach to the school. He was surprised to see that some gentleman had stood up in the Council and said that the Normal School should make their own side-walks. He trusted the City fathers would not be guided by such miserable philosophy. It would be easy, he said, to meet this expense by making the charge 2s 6d a week instead of 7½d, then the school would be self-supporting; but he had no doubt the authorities would do their part of the work. The rev. gentleman sat down amidst great applause.

The Rev. Mr. Jennings pronounced the benediction, and the proceedings terminated.

MR. WADE'S DURHAM CALF,

[Which obtained the First Prize at the Provincial Show in Toronto, September, 1852.]

The show of Short Horn Cattle at our late Exhibition was not only numerous but possessed a number of specimens of first rate excellence. A lot of Heifers bred and owned by Hon. Adam Fergusson were very superior, and Mr. Howitt and others, had Stock that would not have disgraced any of the great Exhibitions of the mother country. Several sales were made at very encouraging prices.

Amongst the most conspicuous on the ground we noticed the herd of Mr. Ralph Wade, jr., of Cobourg; one of his calves, a heifer 6 months old, (a portrait of which we attach to this notice) realized, we understand, the sum of \$300, having been bought by Mr. Becar, of New York.—

Another of his cattle, a bull three years old, was sold to J. Wood, Esq., Jefferson County, New York, for the same sum.

Along with the general symmetry of these animals, we could not but be struck with their velvety softness of hair and delicacy of touch. Mr. Wade informs us also, that on the side of both sire and dam they are descended from a race of most excellent *milkers*. They were born from a cow imported by Mr. R. Wade, senior, the foundation, we believe, of his present stock,—their sire "*American Belted Will*," lately sold to Mr. Duguill of Genesee County, was bred from a cow imported by Mr. R. Wade, senior, and took the First Prize at the Provincial Show, both at Kingston and Brockville. The sire of "*American Belted Will*," took the Second Premium at the British Agricultural Meeting at Newcastle, where 24 were shown; Mr. J. M. Hoppers' celebrated bull "*Belleville*," carrying off the First Prize.

We are glad to see our Canadian farmers



raising herds of such purity and of so independent a character, as while it affords us an opportunity of making use of any really valuable specimens among the cattle of our American neighbors, cannot fail to draw them into our market as the most desirable in which to seek those infusions of new blood so necessary to maintain in full vigor any race of animals.

LETTER FROM WISCONSIN.

STATE AGRICULTURAL ROOMS,
Madison, Wis., 24th November, 1852.

GEORGE BUCKLAND ESQ.

DEAR SIR,—In the November number of your *Agriculturist*, I see that you have acknowledged the receipt of our transactions from "Mr. Bank," as Secretary. Our Society has never had any such officer, that position having been held by myself since its organization, and the volume being sent by me.

I make the correction inasmuch as I have been in the receipt of your excellent *Agricultural Journal* for nearly a year, and more especially since I sent the volume as a slight token of my thanks, for the pleasure afforded me by its perusal. I shall be happy to continue sending you our annual volumes, and hope you will see in them, from year to year, evidence of our progression in the field, in which we are, in common, labourers.

The first volume we prize somewhat more highly, since it is emphatically a Wisconsin Book,—the paper being made in the State—and the printing and binding done here—it will therefore give you some idea of our advancement in Manufactures.

Yours very truly,

A. C. INGHAM,

Corresponding Sec.

[We take the liberty of publishing Mr. Ingham's communication, inasmuch as it not only corrects the mistake into which we had inadvertently fallen, but likewise indicates the good results which flow from Agricultural organizations, and the friendly bond of union which they excite among societies and individuals widely cast asunder by distance, or it may be by natu-

ral and political distinctions. We hope to be able shortly to give our readers a few specimens of the kind of instruction which is to be found in this first volume of Transactions of the Wisconsin Society. In the mean time, we assure its courteous Secretary that we heartily reciprocate the friendly feeling and attention which he has shown.—EDITOR.]

THE CURATE'S PUDDING.—To 1 lb. of mashed potatoes, while hot, add four ounces of suet, and two ounces of flour, a little salt, and as much milk as will give it the consistency of common suet pudding. Put it into a dish, or roll it into dumplings, and bake a fine brown.—*Lady's Book*.

JACKSON SPONGE CAKE.—Take one cup of flour, one cup of sugar, three eggs, and one teaspoonful of cream of tartar, stir them well together, then dissolve one-fourth of a teaspoonful of salaratus in a tablespoonful of hot water, add to the cake, stir briskly and bake half an hour.

TO PICKLE NASTURTIUMS.—Pick them when young on a warm day; boil some vinegar with salt and spice, and when cold put in the nasturtiums; or they may be put into old vinegar from which green pickles or onions have been taken—only boil it up fresh.

TO PICKLE TOMATOES.—Throw them into cold vinegar as you gather them. When you have enough, take them out, tie some spices in a bag, and scald them in good vinegar. Pour the vinegar hot over the tomatoes.

EDITOR'S NOTICES.

ANNUAL REPORT OF THE CENTRAL BOARD OF AGRICULTURE OF NOVA SCOTIA for 1851. Halifax: N. S., 1852.

We have received from the Secretary, James Irons, Esq., the annual Report of this Society, together with a small pamphlet, written by him, giving practical directions for the selection and management of field and garden seeds in Nova Scotia. To both of these publications we intend hereafter to advert.

THE BRITISH COLONIAL MAGAZINE,—Toronto: Henry Rowsell.

This a weekly serial, under the Editorship of Mr. W. H. Smith, the well-known author of the "Canadian Gazeteer," &c. Having only seen the 3rd number, we are not warranted in pronouncing any positive opinion on the merits and claims of this new candidate for public favour. The third number is chiefly made up of selections from respectable sources,—evincing good taste and judgment, and the printing and general appearance of the work, are all that could be desired. Terms 12s. 6d. per annum.

THE CANADIAN JOURNAL for October, contains a pretty full and exceedingly well written account of the late Provincial Exhibition, with a number of cleverly executed illustrations, some of which appear in our present number. The Journal is deserving every support not only by those actually engaged in the application of the applied sciences, but by the friends generally to the diffusion of useful knowledge.

Letters



Patent.

TIME & LABOR SAVED ARE MONEY EARNED

B. P. PAIGE & Co., SOLE PATENTEES.

THE Subscribers having had secured to themselves the exclusive right to Manufacture and vend to others to use, in the Territory of Upper and Lower Canada,

SEVERANE'S PATENT IMPROVED HORSE-POWER AND THRASHING MACHINE,

One of the most Valuable Machines ever invented for saving labor and time, respectfully inform the Public that having greatly enlarged their Extensive Establishment on Wellington Street, now extending through from Prince to George Street, which will give them ample room and accommodations, they trust, to enable them hereafter to supply the whole Farming Community of Canada, with a machine that will thrash and clean more grain in a day with less expense and more neatness than any other Thrashing Machine in use, and requiring but Two Horses.

We beg leave to say to our Customers & Friends, that we are again prepared to furnish those in want of Thrashing Machines, with an article superior even to those heretofore manufactured by us. Our long experience in making, and the very liberal pa-

tronage we have enjoyed in the sale of our Machines, has, together with a constant determination to produce an article that will never fail to excel all others, caused us to watch carefully all the improvements that could be made from time to time, until now we feel confident in saying, that for durability, neatness of Work and amount of it they can do, our Thrashing Machines are unequalled by any in use, and while the grain is thrashed clean, and none of it broken or wasted, it is at the same time perfectly cleaned, fit for the mill, or any market.

One of the above named Machines, will give a man, with proper diligence and attention, an income of from five to eight hundred dollars a year, as appears by the statements of a great number of gentlemen, who thrashed last season, and have kindly given us permission to refer customers to them for information in regard to the operation of our Machines.

Whereas, Letters Patent were obtained, bearing date March 5, 1849, on said Machine, the public are cautioned against purchasing, using, and manufacturing any imitation article, as all infringements will be dealt with according to the law of the land. All the genuine Machines will be accompanied by a Deed, signed by B. P. PAIGE, the owner of the right, giving the purchaser the right to use or transfer the same.

All orders addressed to us, or to WILLIAM JOHNSON, our Agent, will be promptly attended to. Machines shipped to any Port in Upper or Lower Canada, and every one warranted to be as good as recommended.

B. P. PAIGE & Co.

The Agents for the sale of the above Machine in Canada West are as follows:—Workman, Woodside & Co., Toronto; Roswell Wilson, Ancaster; Horatio A. Wilson, Westminster; M. Anderson & Co. London; Mr. Samuel Young, Asphodel. 66s-6m
Montreal, August 1852.

UNIVERSITY OF TORONTO.

Theory and Practice of Agriculture.

PROFESSOR BUCKLAND'S COURSE OF LECTURES, embracing the History, Science, and Practice of Agriculture, will be given during Hilary Term, commencing January 10th, 1853. Three Lectures a week. Fee, \$1 for the Course.

The Canadian Agriculturist,

EDITED by G. BUCKLAND, Secretary of the Board of Agriculture, to whom all communications are to be addressed, is published on the First of each month by the Proprietor, William McDougall at his Office, corner of Yonge and Adelaide Streets, Toronto, to whom all business letters should be directed.

TERMS.

SINGLE COPIES—One Dollar per annum.

CLUBS, or Members of Agricultural Societies ordering 25 copies or upwards—Half a Dollar each Copy.

Subscriptions always in advance, and none taken but from the commencement of each year. The vols. for 1849-'50-'51, at 5s. each, bound.

N. B.—No advertisements inserted excepting those having an especial reference to agriculture.—Matters, however, that possess a general interest to agriculturists, will receive an Editorial Notice upon a personal or written application.

